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ONEDOTZERO 5 EXCLUSIVE DV SPECIAL
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INCREDIBLE WEB 3D TOOLS!

DIRECTOR 8.5

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3D GAME DESIGN TOOLS

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10 DIGITAL CAMERAS

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www.digitmag.co.uk

Digit 36

June 2001

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Add the WOW factor to your 3D games graphics with the best modelling and animation software available. *Digit* rounds up six of the best.

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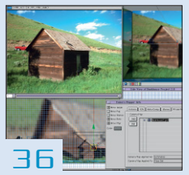

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FREE SOFTWARE! DazzlerMax Deluxe 3.1 – worth a whopping £995!

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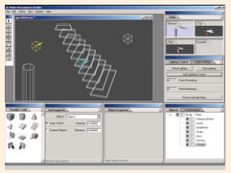

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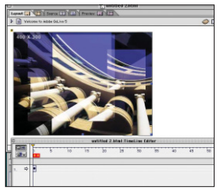

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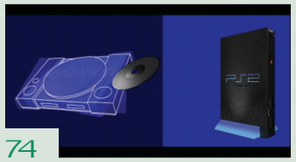

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Onedotzero5

Digit checks out how onedotzero5 and State created the *Voyage of Emotion* movie promoting Sony's PlayStation2 console.

Onedotzero5: show preview

The world's largest digital film festival hits London – and *Digit* is a key sponsor. Get the skinny here.

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Workgroup Alpha

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How Xstatic! Studios produced the CG material for The Grammy Awards.

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COVER IMAGE: JREAL; CONTENTS ILLUSTRATION: DAVID GRANT

CD contents

Every month you can count on *Digit* to bring you the very best demos, features, resources and accessories. This month we exclusively bring you a demo of ARTlantis Render 4, and loads of free stock footage.

demo software

NewTek Aura 2

www.newtek.com

Aura is a digital video effects and compositing tool from NewTek, the makers of LightWave. It features custom brush controls and natural media simulations such as paper textures, a variety of pens, pencils and wet brushes, and the ability to paint in a variety of modes. You can animate any brush or layer; animated variables include motion blur, opacity and noise, and real-time previews are supported in the project window. Integration with LightWave is tight, including the ability to export motion paths created in Aura to LightWave 3D.

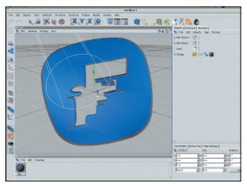
In this demo version, all save and export functions are disabled.

Maxon Cinema 4D XL 6

www.cinema4d.com

Cinema 4D XL 6 is finally on the CD for both platforms. It's filled with countless high-end features and special effects, including a complex particle and light system, bones, HyperNURBS, Metaballs, freeform deformation objects and more. The unbeatable render speed of Cinema 4D has been further optimized so that XL uses even the very last ounce of power left in your machine's CPU.

This demo is fully functional, but has all save-&-export functions disabled. Rendered images are overlaid with the Maxon logo.

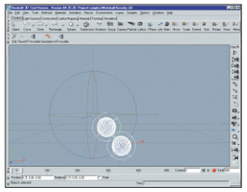


Realsoft 3D 4

www.realsoft3d.com

Realsoft 3D is a fully featured modelling, rendering, animation, and simulation software tool. Its predecessor – Real 3D – was famous for its powerful and innovative tools. Now the new, rewritten Realsoft 3D provides even more power and introduces dozens of exciting new features, all accessible through a very carefully designed, intelligent, and user-friendly interface. Realsoft 3D is designed to meet the requirements of today's 3D artist who requires extreme performance.

This is a fully functional 30-day trial version.

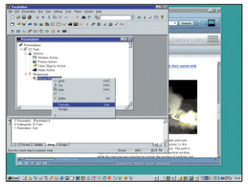


Intelamedia Dazzler 5

www.intelamedia.com

As well as the full version of Dazzler 3.1 on this month's CDigit, we also have the very latest version so you can see the continued evolution of the product. Dazzler 5 has the same structured approach to multimedia development, but with an enhanced user interface, making it easier to move between layout and structure – Windows 98 users can run dual monitors, for example. Dazzler 5 slashes the time to create CBT (Computer Based Training) applications with the new Question Wizard, generating the components and coding – leaving you to concentrate on the questions.

This is a fully functional 30-day trial version.



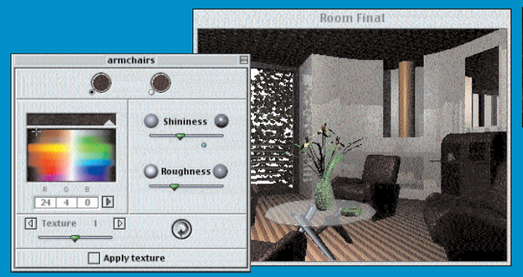
CDigit works with Window 95/98 and NT4, and System 8.0/9.0 on the Power Macintosh. Each demo is in its own folder in either the DEMOS, ACCESSORIES or ESSENTIALS folder. Most of the programs use installers, also coming with uninstallers to allow you to remove them easily. Some demos may require additional decompression, so we have included the trial version of WinZip 7 for the Windows, and StuffIt Expander for the Mac on the CD.

ARTlantis Render 4.0

www.abvent.com

New from Abvent is the latest version of its standalone rendering application, ARTlantis. Integrating with most CAD and 3D packages, ARTlantis offers superb close control to define how a shot is lit, shaded and textured, yielding superb lifelike images.

The PC version starts up in French, but this can easily be changed to English or another language.



Jaws PDF Creator 2.0

www.jawssystems.com

Jaws PDF Creator has now been upgraded to version 2.0. It installs as a Printer driver, making PDF creation as easy as clicking the Print button in your application. PDF files produced are fully compliant with the PDF 1.2 or PDF 1.3 specification published by Adobe. PDF Creator can now distil PostScript Level 1, 2 and 3 files into PDF. Files can be password-protected, and printing and editing can also be restricted.

This version will watermark documents with an unregistered version. A full review of PDF Creator 2.0 can be found on page 51 of this issue.

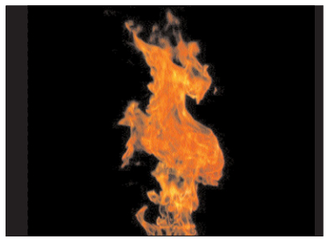
designers resources

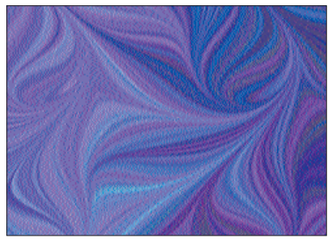
Cadmium

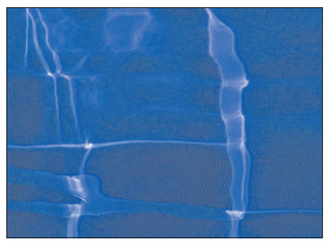
On CDigit this month, Cadmium is pleased to include five clips from various Artbeats Digital Film Library titles for your use and enjoyment. This is only a small sampling of the large volume of imagery available. Artbeats – creator of the Artbeats Digital Film Library and many collections of still imagery – is a leading source for royalty-free content designed for use with digital editing and compositing, desktop video, multimedia, Internet content creation, and 3D animation and rendering. To provide the highest possible quality, most footage is sourced from 35mm film. The clips are then processed by Artbeats for colour correction, dust and scratch removal, and, where applicable, looping, tiling, and alpha channel creation.

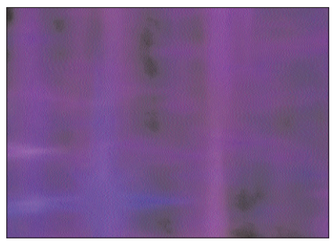
Subjects include *Pyrotechnic Effects*, *Water*, *Backgrounds*, *Clouds*, *Archival Footage*, *Surface Maps*, and more. Frame sizes range from D1 NTSC or PAL resolutions through 2K (2,048-x-1,536) film resolution. All products are available on CD for multiple platforms.

For further information, or to place an order, call Cadmium on *0800 436 867*, or fax them on *020 8288 9220*, email sales@cadmium.co.uk and soon browse the clips on its Web site at www.cadmium.co.uk. You are granted the perpetual, non-exclusive, non-transferable worldwide right to use the clips included on this CD according to the standard licensing terms of Artbeats Images. For full details of this licence, please contact Cadmium.









As per usual, there's loads more information on the CD, with a set of HTML pages with more information about the demos, plus links to the relevant Web sites. You'll need a Web browser to view these pages – we recommend Netscape Communicator 4.75 (Mac/Windows), or Microsoft Internet Explorer 5 (Mac/Windows). You'll find them both on the CD.

other demos and utilities

A Lowly Apprentice InDesign plug-ins

www.alap.com

From A Lowly Apprentice Production comes a collection of Adobe InDesign plug-ins. We've bundled all of ALAP's InDesign plug-ins here, including some new ones, and one FREE to keep, without the normal demo restrictions.

InPrint
Print a selected area of your InDesign document, or save it to disk.

NudgeIt
A convenient palette that hosts nudge and rotate tool buttons.

ItemMarks
Create Crop and Registration, Bleed and Safety Marks around item or pages within InDesign.

ShadowCaster
Adds an easy, one-step way to create real soft-shadows on text and graphics

InBooklet
Impose pages from a single InDesign document into printer flats.

Starburst
Create stunning starburst effects.

InModify – Free!
A context-sensitive dialog box that provides the user with one convenient place to edit the settings for the selected InDesign object or group of objects.

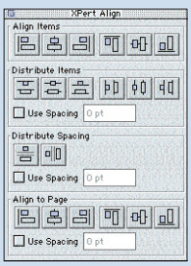
These plug-ins require version 1.5 of InDesign. They will overprint your documents when running in evaluation mode. All of them can be activated by the purchase of a valid serial number.

Alap Xpert Align Xtension

www.alap.com

Also from A Lowly Apprentice Productions is Xpert Align, a QuarkXPress XTension. This makes aligning and spacing objects a cinch – the sort of tasks that could save you many precious minutes every day, adding up to hours every month of previously lost productivity.

This demo works with any Roman language version of QuarkXPress. The installer places a demo XTension into Quark's XTensions folder, causing the entire application to go into demonstration mode. All printouts will have the word 'DEMO' printed across them, and any documents saved while in demonstration mode cannot be opened by QuarkXPress in regular mode. Be careful to use backup copies of your documents when testing demo XTensions such as these. You can return your application to regular mode by removing the Xpert Align XTension from the XTension folder.



MAC ESSENTIALS

Acrobat Reader 4
BBEdit Lite 4.6
Communicator 4.76
Fetch 4
GraphicConverter 4.0.2
Internet Explorer 5
Netscape 6
QuickTime 5 Preview 3
QuickTime 4.1.2
Stuffit Expander 6

PC ESSENTIALS

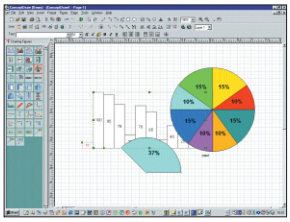
Acrobat Reader 4
Communicator 4.76
Internet Explorer 5.5
Netscape 6
QuickTime 5 Preview 3
QuickTime 4.1.2
SnagIt Studio 5
TextPad 4.3.1
Windows Media Player 7
WinZip 8

demo software

Odessa ConceptDraw

www.conceptdraw.com.ua

ConceptDraw is a cross-platform and multi-purpose drawing and diagramming program for the quick creation of professional-looking diagrams. From business diagrams to software flowcharts, Web site maps to technical drawings, home and office layouts to family trees, ConceptDraw is focused on delivering results quickly. To assist, there are over 80 libraries containing over 1,800 objects on common themes such as flow charts and office layouts.

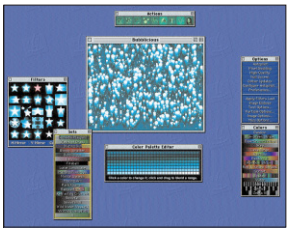


In this demo save, export and print functions are disabled.

Lairware PixelToy

www.lairware.com/pixeltoy

The latest version of the hypnotic graphics tool for the Mac. You can use it to produce amazing graphic displays for video, or synchronize it with audio material for ambient enjoyment. The latest version is also compatible with Mac OS X, and features a number of tweaks and fixes. We've been using it to create QuickTime sequences to put into a DV sequence created in After Effects, making PixelToy a superb value video FX tool.

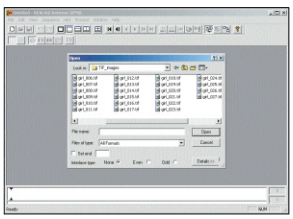


This demo is shareware – registering will unlock more features.

RealViz ReTimer

www.realviz.com

ReTimer is the ultimate Time Warper to slow down or speed up motion sequences. The software utilizes a revolutionary new method for creating new frames between actual frames in a motion or still sequence.

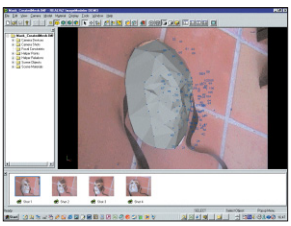


With this demo, you will be unable to load more than ten images, render a sequence, save, or use memory flush.

RealViz ImageModeler

www.realviz.com

Instead of modelling complicated geometry, materials and lighting from scratch, ImageModeler allows graphics professionals to tap directly into the richness of the real world. The software is the first high-end image-based modeller to produce virtual 3D models from photo, video, and cinematic images.

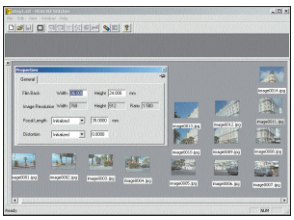


This demo is save-disabled.

Realviz Stitcher

www.realviz.com

Stitcher combines horizontally and vertically overlapping photos into stunning wide-angle, high-resolution images in seconds. Panoramic images up to 360-x-360 degrees can be exported to 2D compositing software for creating high-definition, realistic matte paintings, and to 3D software for environment mapping.



With this demo, you will not be able to render a panorama, increase the size of the preview window, or save your work.

DAZZLERMAX DELUXE 3.1 PACKAGE WORTH £995!

FREE Top professional multimedia authoring tool!

Intelamedia DazzlerMax Deluxe 3.1 brings a new, more unified approach to multimedia creation, allowing you to build and distribute complex multimedia applications and presentations via its intuitive interface. Loaded with tools and examples, there are tons of sample files to get you started on CDigit, and a tutorial starts on page 88.

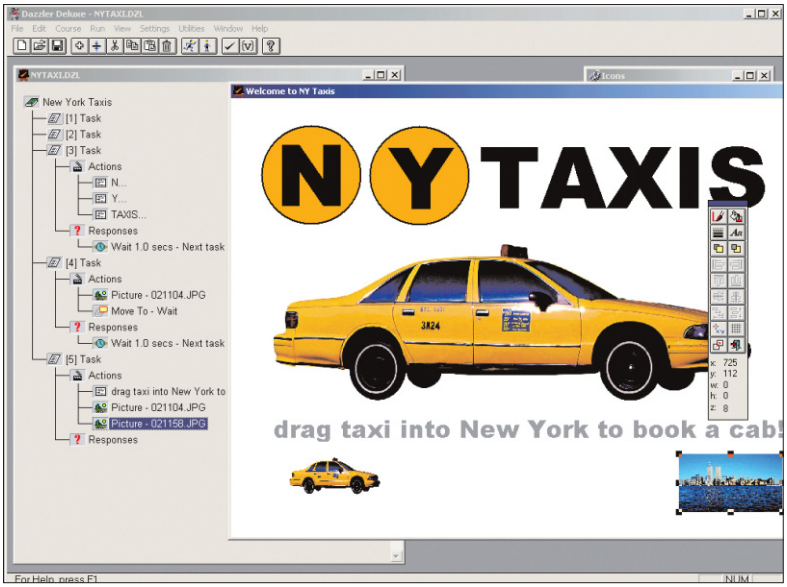
DazzlerMax Deluxe 3.1

Create your own computer-based training courses and multimedia presentations. As originally sold for £995 plus VAT – that's over £1,100 of FREE software for you on this issue.

DazzlerMax Deluxe 3.1 is software for producing interactive multimedia presentations, training courses, product catalogues and kiosk systems. It has been designed with ease-of-use in mind. There's no need to learn a programming or scripting language – you'll be up and running in a fraction of the time you'd expect for a powerful multimedia authoring system.

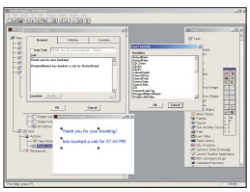
DazzlerMax Deluxe 3.1 acts as the glue for assembling all your multimedia elements. Text, sound, pictures, video and animations can be incorporated into your presentations; just drag-&-drop the appropriate icon. It's all accomplished with a few clicks of the mouse. You can then publish your course or presentation to CD or floppy disk.

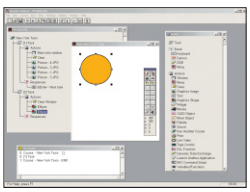
The user guide and reference manual can be downloaded free from www.dazzlersoft.com.

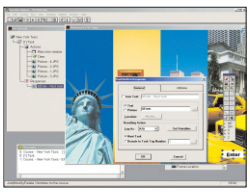


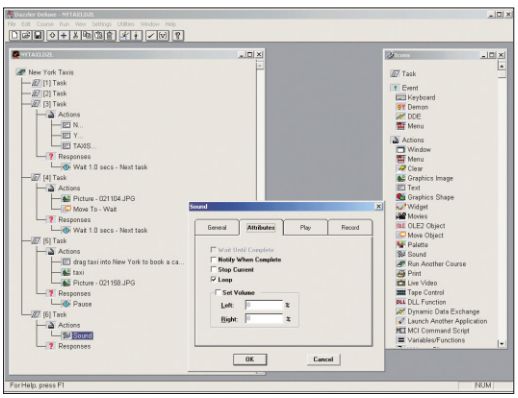
Intelamedia DazzlerMax Deluxe features

- Full editing in the Presentation window, with any object able to be modified as the project is built.
- Any object can be animated – text, pictures, and even video can be moved along bézier paths to create visual impact.
- Full editing, course-building, and preview windows.
- Compile and distribute your project on CD or as a kiosk with a standalone player.
- User drag-&-drop response. Any object in the Presentation window can be dragged around the screen by the user, complete with user feedback on release.
- No timelines: instead it deploys a task and response tree that makes creating, editing, and publishing full multimedia projects a snip.
- Improved button responses, and images can be buttons.
- List box and combo-box responses.
- Full support for MCI digital video standards, including MPEG.
- Full database access through ODBC, with the ability to link to Access, FoxPro, SQL Server databases and more.
- Layered graphics control, plus full graphics control.
- OLE 2.0 action means objects from other applications, such as spreadsheets and word processors, can be directly embedded in the presentation.
- Tons of tasks, actions, and responses mean that complex multimedia projects can be created.
- Full tutorial files such as audio and video files, plus manual, are on this issue's CDigit.









special upgrade offer!

The latest version of DazzlerMax Deluxe 5.0 adds a whole range of powerful new features, including Internet publishing through the Dazzler Java Player. Find out more about it, including a free trial version, at www.dazzlersoft.com. A demo is on this issue's CDigit!

Intelamedia is offering *Digit* readers the opportunity to upgrade to DazzlerMax Deluxe 5.0 for the special price of £495 plus £10 carriage and VAT (a total of £593.38) – a saving of £300. Simply call Intelamedia sales on *020 8947 1990* before the end of July 2001, and mention *Digit* when ordering. Intelamedia, www.dazzlersoft.com

INSTALLATION HEALTH WARNING: Installing Intelamedia DazzlerMax Deluxe 3.1 is a simple process – simply locate the folder on the CD and follow the installation instructions. You will need to run the SETUP program, and follow the on-screen prompts. When installing, you can also install additional media files, such as audio and video clips, onto the hard drive. If you have any technical questions, please refer to the manual, or visit www.dazzlersoft.com. NOTE: WINDOWS 3.1/95/98/NT AND 2000 ONLY.

My God, it's full of polygons

It's something of a revelation when you see a complete, working level of *Quake III* being played as a Macromedia Shockwave file. It is even more of a revelation when you realize that the file is less than 500K, you're viewing it in Microsoft Internet Explorer, and it's running at an impressive 25fps. Web 3D is here, and it's time to get religion.

I've always knocked the concept of Web 3D as offering too little for too much effort, both for the 3D producer and the consumer. It's been a technology that struggles to replicate the world in binary form, and fails to deliver. I've seen thousands of 3D-powered Web sites that do little more than recreate virtual shopping malls, complete with 3D escalators and polygon shopfronts. They're extremely limiting: achingly slow, bandwidth-hogging, poor resolution, and lack of real-world physics mean that it'd be simpler to send someone round with a jumbo box of Lego. Quicker, too.

Web 3D products are even worse. Numerous technologies have created rival 3D nations that don't allow for cross-border travel. Users need more plug-ins than a Dolphin bathroom showroom, and the 3D experience is hardly inspiring. In short, 3D on the Web has had as much impact as those red-&-green 3D specs had on the cinema. Not much.

Until now, that is. Macromedia – better-known for its 2D Web animation technology, Flash – has fleshed out its offerings and stepped into 3D space. Only this time, it's bringing something useful to the party. Working with Intel, it has injected a 3D drug into Director, bridging the gap between 3D model makers and multimedia producers. The result is heavenly.

Director 8.5 adds in a couple of 3D phrases that the Web has been lacking: 'subdivision surfaces', 'multi-resolution meshes', 'real-world, real-time physics', and 'ohmygod, the file size is how small?'.

Not only does it offer the modelling capabilities of a top fashion house, but it builds its 3D tower on the firm foundation of the best multimedia application there is. It's like the birth of a new deity, with the three wise men of Macromedia, Intel, and you – the multimedia creative – bearing gifts of rich 3D worlds.

In use, Director 8.5 and the resulting 3D files are staggering. Imagine being able to create a 3D cut-scene that is fully rendered and textured, yet able to be interacted with in real-time. In one example shown to *Digit* by Macromedia, a stack of shipping cartons were knocked over, while an overhead light was swung around at the end of its cable. The boxes collapsed and tumbled realistically, while the soft, overhead light cast wandering shadows that moodily illuminated the real-time scene. Imagine adding full multimedia controls, interactive streaming video and audio, and the ability to share that world with up to 2,000 other people in real-time. Now you're talking a big-time, show-stopping, 3D jamboree.

Yet while the engine and front-end to this 3D fest is the eye-opener, it's the behind-the-scenes news that will make creative professionals see the light. The first biggie is that 3D on the Web is now unified: the Shockwave Player used for viewing the content lives on over 200 million desktops, according to Macromedia, and it ships with each Web browser. It also works on both Mac OS and Windows platforms, and you can view the content directly in the window of most browsers. It might not have the openness of a Web 3D technology such as VRML, but it does have an installed base that can view it right off the bat.

The other, crucial development is that the content created is free to distribute. It may sound like a bland statement, but in the world of Web 3D, this is the Second Coming. Other Web 3D technologies have cheekily tried to get creatives to pay a royalty fee depending on how many people view your model – fine if it's a mock-up of your model railway collection, but disastrous if it's a popular poseable 3D model of a popular real-world model.

In short, this an elegant, almost holy solution that in one stroke has done more to energize a lacklustre technology than anything that has gone before it.

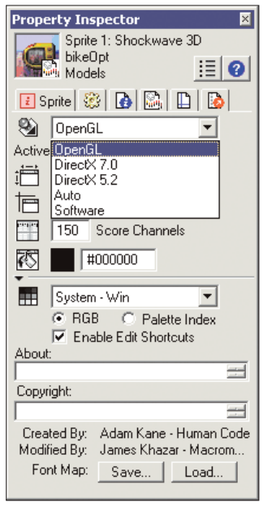
Reply and comment to dialogbox@digitmag.co.uk

MATTHEW BATH

[It might not have the openness of a Web 3D technology such as VRML, but it does have a user base that can view it right off the bat]

Director 8.5 merges 3D, Web

Macromedia aims to make Web 3D part of the multimedia lingo with its latest Director upgrade. But do multimedia producers really need subdivision surfaces?



3D properties
Alter the attributes of 3D models.

Macromedia has added an extra dimension to its latest Director upgrade – literally. Director 8.5 now includes Intel Internet 3D graphics software, bringing both interactive 3D modelling and animation capabilities to the multimedia package. 3D content created in Director 8.5 can be played back using Macromedia's free Shockwave Player.

3D multimedia particles

Aimed at professional Web designers, multimedia producers, and 3D content creators, Director's new 3D graphics features include multi-resolution meshes that optimize playback through advanced streaming and compression. Other bandwidth-friendly additions include subdivision surfaces, bones and keyframe animation, particle system effects, and non-realistic cartoon rendering that delivers a more traditional, cel-like look. Macromedia says a high-speed rendering engine will scale to provide optimized playback on a variety of platforms. Content will play back on both Windows and Mac OS systems.

And, unlike other Web 3D solutions, Macromedia says that models and 3D environments created with Director 8.5 can be freely distributed without the need to pay royalty fees. Most other Web 3D systems demand payment based on the number of users viewing the model.

Macromedia is pushing Director's new 3D capabilities hard, with many pundits predicting that Web 3D will be the battleground of 2001. The release follows Adobe's announcement last month of its Web 3D authoring package, Atmosphere.

Director 8.5 includes a swath of 3D tools – many which are designed to speed the delivery of 3D objects over modem-speed connections.

A multi-resolution mesh feature lets designers create a single, high-resolution model, plus parameters that remove vertices from the model as needed. Model complexity can be altered depending on the CPU power of the client machine, distance from the camera, and targeted frame-rate for animation playback.

Sub-division one

Macromedia also says that the feature allows for progressive downloads of 3D objects, with the lowest resolution model downloaded first, then the resolution is progressively increased as more data is downloaded. The company says that the result is a smoother, more realistic model that can scale according to the client's CPU specification and available bandwidth.

Building character

Character animation features are high on the agenda. Pitched at creatives looking to produce Web-based 3D episodes, the package can build character-based animation that uses bones animation, motion-blending, and cartoon rendering.

Bones animation lets developers put a skeleton inside a character and create a real-time animation by transmitting just the bones data points – as opposed to the data points for the entire model. The model then moves according to the internal skeleton movement, which the company says provides not only realistic deformation effects, but improves deliver over slow bandwidth, and reduces development time.

Also included are motion-blending tools, which let developers create smooth and realistic transitions in an animation from one complex sequence of moves to another. In a demo for *Digit*, the feature was used to create a fully interactive character that could walk, run, and jump with seamless transitions between the actions. Designers can also render 3D models in various drawing styles, such as comic-book and pencil sketches.

The upgrade adds a comprehensive particle system. Particle system effects include the ability to recreate behaviours such as smoke, fire, water, dust, sparks, and explosions. Macromedia says that several thousand particles can be animated at once in real-time, and can be affected by gravity and wind. Hardware acceleration, including rendering through OpenGL and DirectX, is included.

A physics modelling facility debuts, with Director 8.5 including Havok's real-time interactive physics features. In a demo, the physics engine was shown off as a set of 3D packing cases that could be tipped over, tumbling as they fell.

Macromedia is also touting its live-updating prowess – including the live update of 3D models. The update includes the ability to create dynamic Web pages using XML to read live content.

Director 8.5 doesn't create models, however. For that, you'll need to build the model in a 3D modelling application, such as Discreet 3DS Max 4, and then import the model data into Director – it outputs the interactive model as a Shockwave 3D file – a proprietary file that can be read by Shockwave Player. Macromedia claims that 80 per cent of major 3D modelling package makers have signed up to support the format.

Director 8.5 costs £949. Upgrades from version 8.0 cost £149, and from earlier versions, £299. All are available from Computers Unlimited. It runs on both Mac OS and Windows.

Macromedia, www.macromedia.com

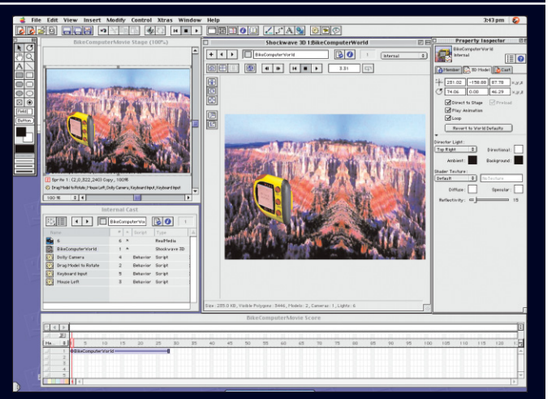
Vanilla 2D tools creep under Director 8.5's Web 3D radar

The update isn't solely 3D-centric. New to Director is the ability to stream RealAudio and RealVideo within Director content, with the application able to use its Lingo scripting language to control the RealMedia stream. Features include the ability to add audio panning, as well as effects such as quad modification and imaging effects.

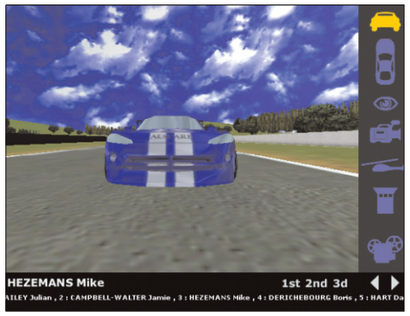
Also new is an update to the Shockwave Multiuser Server – which lets numerous users interact with Director content and other users. Support has been added so that sites can host up to 2,000 simultaneous users, and UDP support has been integrated. The company says UDP will enable faster communication between multiuser Shockwave content. Server-side scripting also debuts, which lets designers add logic and control functions to content.

Macromedia Flash 5 assets can be added to Shockwave 3D content and RealVideo streams.

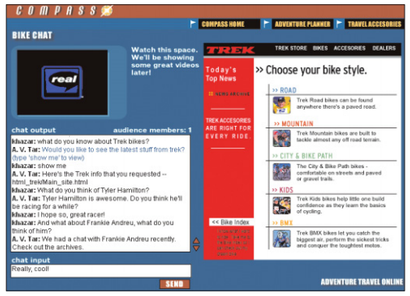
Finally, Director's scripting language, which provides the interactive power behind Director, has been overhauled. More than 300 new Lingo keywords have been added, aimed at giving control over interactive 3D animation, streaming RealVideo and RealAudio, and Flash. Director 8.5 now includes over 800 commands, and provides the ability to control cameras, lighting, and objects, plus conduct real-time manipulation of model vertex positions and texture mappings.



Zooming around the interface
Director 8.5 includes new features such as support for RealVideo streams.



Multimedia 3D from Director
Applications include interactive multimedia projects, as well as games such as this *Quake III* level (bottom left) in Shockwave 3D.



RealVideo streams and chats
Up to 2,000 users can chat using the Multiserver in Director – or play games – while RealVideo and RealAudio debuts too.

DESIGN EVENTS

onedotzero5
ICA,
London
April 27 – May 6, 2001
The world's largest digital film festival featuring a full programme of motion graphics and visual styles.

Demystifying Java
The Brewery,
London
May 1, 2001
In-depth look at Java in the business world – so may be limiting for designers. However, the day includes Java seminars and workshops.

MITIL
Lake Geneva,
Switzerland
June 20-23, 2001
Geared to Web and TV broadcasters, MITIL includes a comprehensive technical exhibition, discussion forums, and a market for buying Web TV programmes.

SIGGRAPH 2001
Los Angeles Convention Center, Los Angeles
August 12-17, 2001
Major multimedia, 3D and graphics conference and exhibition.

IBC 2001
RAI,
Amsterdam
September 14-18, 2001
Pitched at digital creatives in the video and 3D arenas, this massive exhibition and conference includes large numbers of exhibitors and cutting-edge demos.

3D Festival 2001
Oksnehallen,
Copenhagen
October 23-26 2001
Massive 3D festival, with your chance to get some hands on with the latest 3D software. Includes conference.

Digital Media World
Olympia,
London
November 13-15, 2001
The biggest UK event for digital creatives, especially for digital video and 3D producers. This year it features a new conference stream called Game Zone, and a streaming media conference will feature.

All events are listed in full at
www.digitmag.co.uk

Mobile multimedia meltdown

Your work is in danger of being rendered valueless due to the next wave of mobile multimedia devices that can wirelessly, and freely, distribute content.

A new breed of roaming Napsters – able to swap music, video and text at will – is set to terrorize content providers and artists alike, according to the telecoms and new media consultancy Analysys Research.

In a white paper produced by its scenario planning department, Analysys says a "mobile multimedia meltdown" could be imminent. That would mean "the destruction of content value through peer-to-peer (P2P) technologies".

It envisages a near future where existing technologies could allow anyone to swap information without paying copyright owners, distributors, telcos or Internet service providers. "We are just seeing some of the devices coming along now, such as the Sony Cliè handheld, that are personal organizers with Bluetooth and MP3 capabilities," says Philip Guildford, head of the company's Web systems group.

"All it needs now is some Napster-like software that will allow direct exchanges from one handheld to another. Young people would use it and as more and more did, you'd get more and more utility out of that network. "With this situation, you can't attack the equipment supplier, you can't chase the person who has put the software out and you're not going through a static network so you can't trace the source. It's that kind of moving decentralized network which is incredibly hard to police."

A rotten Bluetooth

Guildford imagines a situation in the next 18 months where transfers of music, online newspapers and even pornography could take place over wireless Bluetooth devices used by commuters on their way to work or by teenagers in clubs: "It's an alarming scenario for copyright owners, parents, everybody," he says.

Analysys advises the major players to begin developing their own offerings that will be more functional and secure than unofficial products and to work with manufacturers so that their hardware is optimized for recognized means of content sharing and delivery. "I think people would be willing to pay for that," says Guildford.

© 2001 The Industry Standard Europe

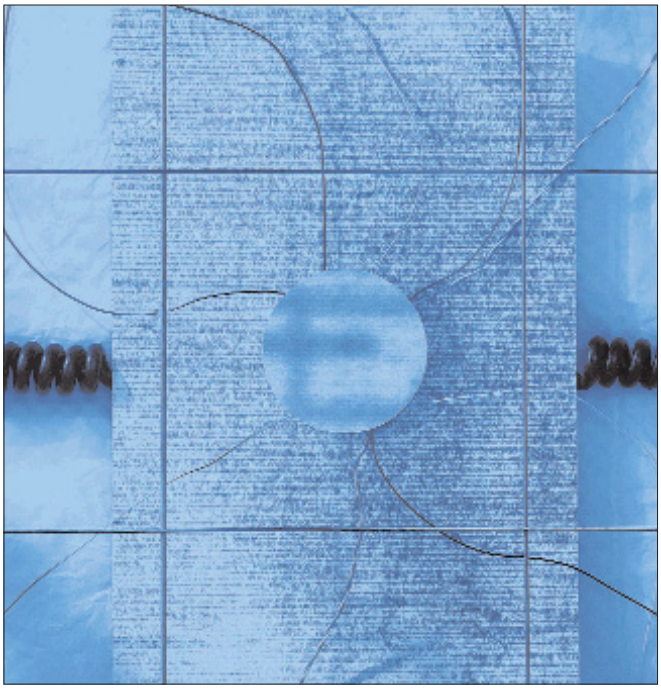


IMAGE FROM WWW.CADMIUM.CO.UK (DIGITAL VISION)

Bluetooth the pirate
Technologies such as Bluetooth could threaten multimedia content creators.

Smoothing the Web video stream

Jerky Webcasts are a disappointment for everyone – but a new streaming media server announced last month could make them a thing of the past.

Digital Fountain has developed a unique technology that solves the "content brown-out" that occurs when too many people are trying to access the same content simultaneously. The company's Streaming Fountain server and Download Fountain Player are designed to distribute content such as movies, software downloads, and image and music files on behalf of Web sites and companies trying to get a large audience.

over the Internet

Introducing Fountain Servers.

Based on Digital Fountain's patented Meta-Content technology, Fountain Servers distribute rich content on demand to an entire corporate enterprise or a television-scale Internet audience via a single server.

With Fountain Servers, larger audiences do not require corresponding larger amounts of server and network resources, creating the predictable, flat cost model of broadcast networks while preserving the on-demand access of the Internet.

Fountain Servers let users get a perfect copy of the rich content they want, when they want it.

Video fountain
Digital Fountain pledges quick Web DV.

Existing streaming technologies transmit raw data that must be received by the end computer in the exact order it was sent in order to avoid the fuzzy, choppy images and sound typical of today's Webcasts. But Digital Fountain's new technology streams mathematical equations that can be delivered in any order. Since each packet of so-called meta-content contains data about the entire file being transmitted, the end computer need only to receive a sufficient number of packets in order to perfectly re-create the original content.

Such technology will allow companies that offer live Webcasts and video-on-demand services to broadcast content to multiple users simultaneously using a single bandwidth stream (a concept known as 'multicasting') instead of having to dedicate a bandwidth stream to each end user (called 'unicasting'). This will save content providers money that otherwise would be used to buy multiple servers, said Clifford Meltzer, president and CEO of Digital Fountain.

Digital Fountain's technology is reported to be up to 30 times more efficient for unicast networks, and even more efficient for multicast networks where the audience that shares the stream can be unlimited, according to the company.

Several companies are already clambering to use Digital Fountain's technology, and Microsoft has endorsed the company's product. Sony, which invested £1 million in Digital Fountain in 1999, is using the technology for video-on-demand internally, and is looking to integrate the technology into its business.

www.digitalfountain.com

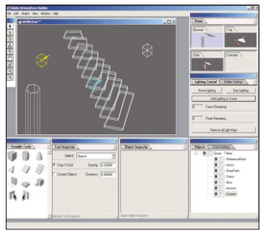
E Ink demos ebook

E Ink, a maker of electronic ink technology, is one step closer to the creation of an active-matrix version of paper-like electronic-ink displays that could be used in cellular phones, PDAs and reader devices. Engineers at the company have demonstrated what E Ink claims is the first active-matrix electronic-ink display that is capable of producing high-resolution illustrations and text, E Ink said. The display prototype is 12.1 inches (30.7 centimetres) diagonally with the resolution of a traditional laptop computer, the company said.

E Ink, www.eink.com

Adobe adds 3D Atmosphere

Adobe squares up to Macromedia's 3D on the Web moves with a trick of its own in the shape of Atmosphere, its new 3D tool for creating Web 3D worlds.



Adobe Atmosphere
A true 3D world builder.

Ten features in Atmosphere

- **3D primitives** – create stairs, walls, spheres, cubes and more.
- **3D manipulation tools** – unite, intersect, and combine 3D objects.
- **3D importing** – bring in models from other 3D tools, such as Maya.
- **Community chat** – live talking.
- **Create your own avatars**
- **Animate textures** – import JPEG, GIF, and PNG textures, apply to any object, then animate them.
- **Advanced lighting** – any object can be turned into a light source, and hidden from view.
- **JavaScript actions and triggers**
- **Link to any other world** – creators can build portals that jump to any other 3D world hosted on any machine.
- **Works over a 56kbps modem and uses incremental rendering.**

Adobe wants you to "walk the Web" with its 3D virtual world tool Atmosphere. Scheduled for a summer release, Adobe says it will let 3D artists and Web designers craft graphically rich, true-to-life VR worlds.

The beta version, launched hot on the heels of Macromedia's Director 8.5 announcement, is available for Windows. A Mac OS beta version is slated for a summer 2001 release.

Adobe is keen to ride the 3D bandwagon – and is pitching Web 3D as a technology that will transform the Web. The package includes Atmosphere Builder for creating 3D worlds, and a 5MB browser for viewing them.

Change of Viewpoint

The Atmosphere browser is powered by the Viewpoint Media Player (formerly MetaCreations), and the move is the first project resulting from Adobe's investment in Viewpoint last year.

Adobe says that Atmosphere is a complete system that will deliver high performance and true immersion for end-users. When a user walks into an Atmosphere world, the world loads immediately for instant exploration, says the company. Additionally, the worlds can be hosted by anyone.

An Adobe Atmosphere Community Server will ship as part of the package, says Adobe, and will allow multiple users in multiple locations communicate with each other in a single 3D world.

Unlike Director 8.5, Atmosphere is a true 3D world builder, rather than a 3D multimedia tool. Atmosphere includes a raft of 3D creation tools for building models and scenes from scratch.

Primitive Web 3D

A Variable tools feature gives access to basic primitives and surfaces to create 3D worlds, such as stairs and portals. Adobe says designers can click on an icon for a wall or floor, the paint the object onto the 3D canvas. The company says that objects can be linked to other objects in other worlds using 'snap-to' points.

A Group Object Inspector lets designers craft more complex objects, says Adobe, allowing primitives to be united, subtracted, or intersected with other objects or surfaces. Adobe says that Atmosphere will be able to import a range of 3D file formats for modelling as well, from tools such as Discreet 3DS Max 4, Alias|Wavefront Maya, and Curious Labs Poser.

The worlds won't be static, flat-shaded domains either, says Adobe. Atmosphere includes features that the company says will bring virtual 3D worlds to life, such as lighting effects, animation, and textures.

Textures can be created from GIF, JPEG, and PNG images, and images can be applied to any object or surface, and scaled, rotated, and animated on the fly, says Adobe. Scene lighting also features, with the ability to use any object or surface as a light source to illuminate other objects. Atmosphere will account for the surface colour of the object, as well as any shadows cast on surrounding objects. Luminous objects can be hidden for more control.

JavaScript animation

Liberal use of fogging is available, with controls to set both visibility and depth, says Adobe. Animations can also be imported that were created in other 3D modelling programs, and JavaScript triggered animations and audio cues are supported.

Adobe is keen to stress workflow and productivity tools in Atmosphere's first release. The user interface is gleaned from other Adobe tools, with similar menus and options found in its other Web tools. A Views panel debuts, which lets designers move quickly between four views as worlds are created – a wireframe representation of the world is deployed for geometric editing (top, side, and isometric), while a browser view offers WYSIWYG editing, and is the mode where special effects are added.

An Inspector panel that gives access to a number of context-sensitive options and tools for creating and editing worlds will ship with the final version, says Adobe, while an Objects panel lets designers organize objects as groups and sub-groups. Independent object transformations, such as scale and rotation, are also displayed.

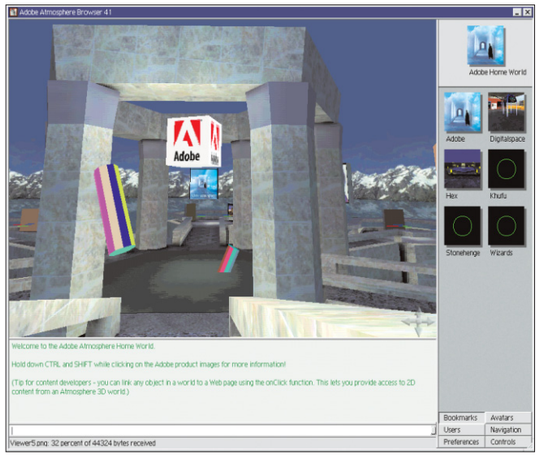
Adobe is pushing Atmosphere's high-performance 3D power. The company says that users will be able to view worlds in real-time over a 56kbps modem, with speedy performance due to small file sizes, and incremental rendering that only renders active areas of the screen.

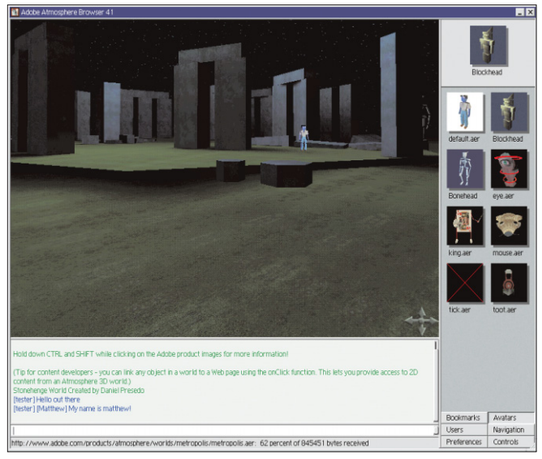
Only for the lonely

Yet a 3D world without other users is a lonely place. Adobe is addressing this issue with Atmosphere's ability to link to other worlds on other Web sites, forming a limitless community or even shopping malls, says the company. A portal can be created to jump to other worlds, and users can bookmark worlds.

Finally, avatars – 3D characters that represent the user – can be created in any 3D software and imported into the application. Avatars will feature motion via JavaScript. A real-time chat and messaging system features via a community server.

Adobe Atmosphere is in beta, and can be downloaded from Adobe's Web site. The Mac OS beta is due in summer 2001, and pricing has yet to be set.
Adobe, www.adobe.com





Creating atmospheric 3D worlds
The end result, viewed through Adobe Atmosphere Browser, shows lush worlds that can be traversed over a 56kbps modem, and feature live chat and customized avatars.

You are a winner
The European Junior Animators Award needs you to get animating.

Junior animators award

3D animators just starting out have been given the chance to win a full copy of SoftimageIXSI with hardware and training through the European Junior Animators Award, which is now accepting entries for this year's award. The award is run by a partnership of 3D companies including Softimage and Hoxton-based training centre The Finishing School.

First to the finish

The award is open to animators who use any 3D package with less than two years professional experience, although anyone with an XSI licence in their name cannot enter.

The prize includes an XSI licence, a workstation to run it on, and training from The Finishing School – worthy for any professional looking to make the jump into 3D animation.

The criteria for the award are largely for pure animation skills rather than technical prowess, although design integrity, originality, conceptual skills and direction will also be considered, said the competition organizers.

Judge and jury

The award will be judged by professional 3D animators from the top animation houses. The impressive judging panel includes The Mill, Jim Henson's Creature Shop, Psygnosis, Red Post Production, BBC Pebble Mill, Aldis Animation which has featured in previous issues of *Digit*), Tyrell, Myths and Legends, 4:2:2, Soho 601, Video Graphics, Skaramoosh, and Cinesite.

The deadline for entries is September 28, 2001. For more details on how to enter an animation send an email to ejaa@bubblesqueak.co.uk

Jupiter projects streaming-media boom to lure creatives

Jupiter Media Matrix analysts expect spending on streaming video to erupt over the next four years, according to a report released by the company last month.

Streaming-media technology will increasingly be used internally at companies and in business and ecommerce Web ventures, and that will drive up spending on the technology, according to Jupiter. Last year, companies spent £100 million on streaming technology, Jupiter found. The market analysis company expects that to grow to £2 billion for streaming media and related services in 2005.

High-tech companies will be the first to embrace the streaming-media trend and they will be followed by the pharmaceutical businesses and other industries, said Jupiter Senior Analyst, David Rader

The increased spending will come, Jupiter said, when the client companies of Web designers expand existing internal use of streaming media, and incorporate more external use. Companies currently use streaming technology mostly for efficient internal communications more than external communications, Jupiter said. But that's about to change.

"Companies are realizing that they can get more bang for their buck with streaming media," Rader said.

Complex external applications of streaming video will become more prevalent once companies prove the financial viability of internal use and overcome the technological hurdles that steaming media presents, Jupiter said.

According to Rader, external use of streaming media has been slow to catch on because "the applications of streaming are more complicated and the planning is more extensive."

Low streaming software prices and today's fast connections make streaming media an economically efficient choice for communications, Rader said. However, he added that the cost of high-speed modems necessary to properly run streaming-media programs might deter some companies from using streaming technologies.
Jupiter, www.jup.com

Streaming streams on
The Web streaming market is growing.

CubicEye sees six-sided Web

User interface design gone mad, or a new paradigm in Web browsing? CubicEye could well herald the latter with its ability to transform the Web into a 3D cube.

Even budget PCs have solid 3D graphics capabilities, and 2ce's newly announced CubicEye Web browser might provide a hint of what future 3D environments could look like, now that 3D power is widely available.

Perhaps the only truly innovative product announced at last month's undersized, uneventful Comdex Spring show in the US, the CubicEye is actually a front end for Microsoft's Internet Explorer that makes 3D navigation a fundamental part of the Web experience.

CubicEye Free provides basic tools. CubicEye Plus, a more feature-rich £12 version, will be offered beginning in May.

The Web on walls

Why add 3D navigation to a Web browser? The basic purpose is to put multiple Web pages within easy reach. The CubicEye's browser window looks like the inside of a 3D cube, and it displays pages on all five visible walls (called panels). You can rotate the cube so any page is on the back, primary panel – and when you do so, the whole cube swings around in smooth 3D animation.

Here's where things get tricky: You can turn any wall into a cube itself, then turn the walls of that cube into cubes. And so on, ad infinitum, you can cube Web pages for 3D display. Doing this effectively builds out the browser's 3D world into a series of tunnels with Web pages plastered on all the walls. Navigating through this environment feels a little like playing a game, such as *Quake*.

3D gimmick?

It's a cool effect, for sure, but is it more than a flashy gimmick? Mike Rosen, 2ce's chief executive officer, says it's a practical way to handle multiple Web pages at once. Most browsers are not very good at juggling pages, he says, while with CubicEye, "You can interact with a panel while others are loading."

The CubicEye's 3D display does harness the power of today's 3D video cards; in fact, it requires that the PC's has 16MB of graphics memory.

In the short term, the free version will certainly be a worthwhile download for anyone who's curious about where user interfaces could be heading.

2ce, www.2ce.com

A new take on the Web
Yes, this really is the future of the Web – cube interfaces and Quake navigation.

Gates starts global Xbox offensive

Microsoft chairman and chief software architect Bill Gates launched a publicity offensive at the Tokyo Game Show last month, aimed at winning customers away from competing games consoles ahead of the launch of its Xbox console, and to woo 3D games developers to the system.

One stunt saw Gates pictured on the tray liners at a fast-food restaurant at the game show, holding a hamburger and an Xbox controller and asking, "Which of these two items is more tasty?"

Gates's focus on Japan, including delivering a keynote speech at the show, is not surprising. Not only is Japan one of the world's top games markets – Gates cited figures showing that a third of games revenue worldwide come from Japan, and three out of four homes there have a games system – but it is also the home turf of Sony and its PlayStation2.

The Xbox is based on a 733MHz Pentium III processor from Intel and includes a graphics processor produced by NVidia, 64MB of memory, a DVD drive, ethernet adaptor, four game ports and an 8GB hard disk.

Microsoft's offensive is not focused on hardware alone. Gates stressed that hundreds of developers and 3D artists are working on games and used the keynote to preview 14 of the titles currently under development.

Gates' keynote comes weeks after the industry got a vivid reminder of the price of failure in the highly competitive market. Sega threw the towel in on its Dreamcast console, at the end of January after large losses on the back of sales that never managed to live up to expectations.

Mmmmmm, tasty!
Bill, a burger, and Xbox. Not much of a choice for 3D creators, is there?

Pop a MS Tablet PC

Compaq plans to develop Microsoft's Tablet PC with the Windows XP operating system. The tablet-based PC will be the size of a standard sheet of A4 paper and expected to weigh less than current notebook computers. The Tablet PC will provide the power of a full-function PC while also offering the convenience of a notepad, said the company.

Network Publishing 'future'

Adobe used the Seybold Seminars publishing expo in the US to reaffirm its Network Publishing vision, and bring PDF support to the Palm handheld PDA.

Network publishing is about delivering content anywhere, anytime to any device, and that is exactly what Adobe will focus a strong portion of its future energies on, said Bruce Chizen, the company's president and CEO, during a keynote speech at Seybold Seminars last month in the US.

"It is about getting information on different devices, information that will be delivered in the future very quickly through broadband means," he said.

Adobe's role will be focused on the Web, Chizen said. Adobe will assist customers with making content Web-ready by tagging it with XML. "In the area of delivery, we will work with partners to drive standards... that are PDF and XML-based," Chizen said.

For the creation of content, standards like XML, HTML and SMIL will be critical, while on the management side, it will be WebDAV and DRM (Digital Rights Management). The delivery arena will use standards like SVG and SWF, Adobe said.

Adobe demonstrated how its products, such as Acrobat, which assists with transforming files into PDF format, InDesign, a page layout and design program and GoLive, Adobe's Web site creation program, will assist with getting content to the Web and to other devices, such ebooks.

Adobe said it has released a beta version of Adobe Acrobat for the Palm operating system, which will put the reader on handheld devices.

Adobe, www.adobe.co.uk

IMAGE FROM WWW.CADMIUM.CO.UK (DIGITAL VISION)

Digit poll reveals 3D winner

Digit has closed its online poll that asked the question which is the best 3D software. A staggering 1,539 people voted last month, with hundreds posting comments battling over their choices. The winner, with a whopping 26 per cent of the votes cast (401 votes) was Maxon Cinema 4D XL, which pipped second-placed Discreet 3D Studio Max 4 to the top spot. 3D Studio Max clocked up 22 per cent of the votes (351).

Third place was AliasIWavefront Maya (18 per cent, or 282 votes). Forth and fifth places were separated by a single vote - Avid Softimagel3D capturing 207 of the votes cast, compared to NewTek LightWave, which scored 206 votes. Both won over 13 per cent of users. Finally, five per cent of readers voted in the 'Other' category, with popular choices also being trueSpace, Amapi, and Realsoft 3D.

A new poll is now live on the site, which aims to find the best DV software.

Digit, www.digitmag.co.uk

EU rules on Web copyright law

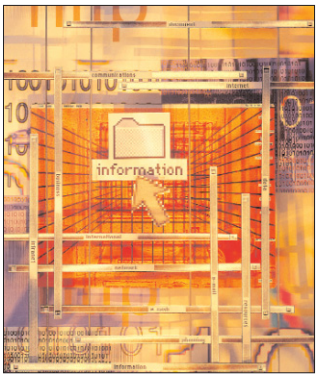


IMAGE FROM WWW.CADMIUM.CO.UK (DIGITAL VISION)

The European Union's Council of Ministers has approved a pan-European directive on Internet copyright rules that sets out to protect copyright holders while allowing private copying of some audio and video material.

The directive seeks to stem the tide of Web piracy by giving copyright owners the right to limit the illegal downloading of digital audio and video files. It also provides for the use of encryption to block duplication of digital files.

In an attempt to balance the rights of both copyright owners and users the EU directive allows for private copying.

Quark details vision, too

Not to be outdone by Adobe's future-vision announcements at the US-based Seybold Seminars, Quark's president and CEO Fred Ebrahimi used the event to detail the company's vision of the publishing environment of tomorrow – a seamless platform on which content that's produced once can be re-purposed for any publishing medium.

Ebrahimi's keynote came on the heels of an address by Adobe's new CEO, Bruce Chizen, in which he laid out that company's commitment to Network Publishing – essentially publishing any content in any format.

Quark's vision of the future, dubbed Media Independent Publishing, follows a similar line of thinking as that of Network Publishing, to offer the tools to publish the same content in many different formats.

The new strategy consists of three distinct legs: QuarkXPress 5.0, essentially a version of the highly popular desktop publishing tool that can output either to paper or the Web; Quark Digital Media system, a content management system that facilitates the workflow throughout an organization for print and Web publishing; and Quark Active Publishing Server, which enables real-time Web-based editing for print and the Web.

None of the products have as yet been released and the company is being purposely vague about when the line will ship, thanks to a sort of "mission creep" that continues to dog the company from a premature release of QuarkXPress 4.0.

Offering repeated mea culpas, especially regarding the shipment of QuarkXPress version 4.0, Ebrahimi told the audience that it's true that the maker of the world's leading print authoring tool had kept a low profile throughout the Web boom.

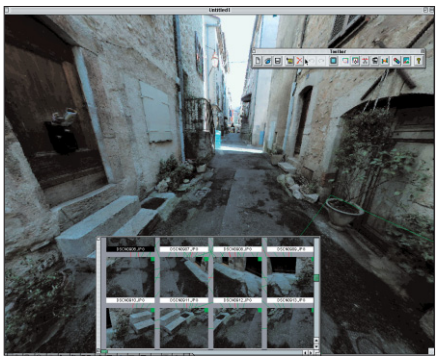
"I guess it's true that we're a bunch of publishing and computer nerds and it is also true that we have not been very good at making a lot of noise," he said, noting that the company's new direction is being driven more by addressing customer needs rather than coming up with technological innovations.

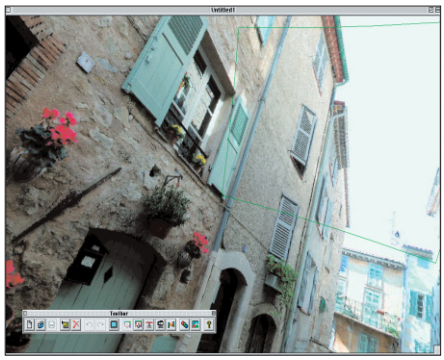
"We continue our love of publishing and we will continue putting our energy to making you as productive as possible."

The company also displayed an ironic hint of conceited humility, noting that QuarkXPress 5.0 will be compatible with Macromedia and Adobe's widely used Web-authoring tools. "We understand that Quark will not be the foundation of Web publishing right now," Kurz said, noting that much of the momentum Quark is gaining with Web technology will come into play as the Web moves more toward vector-based standards in the future.

RealViz updates Processing Factory kit

Camera-tracking software MatchMover, photographic extrusion tool ImageModeler, and VR creator Stitcher have all been updated by RealViz to form the basis of a new Image Processing Factory outfit.





Building a scene
Stitcher creates a photographic 360-degree image.

RealViz has announced updates to three of the four tools that make up its Image Processing Factory. MatchMover and ImageModeler both gain new features, while Stitcher will be made available in a version specifically for Kaidan's line of panoramic tripod heads.

Camera-tracking software MatchMover has had 3D tracking facilities added. Previously it could only track in 2D. According to the company, the 3D tracker detects relevant 2D features in the original sequences and reconstructs them in accurate 3D scenes and camera moves. Track selection, 2D and 3D tracking are all performed automatically.

The company has also upgraded the 2D tracker, which can now take 2D pattern rotation and scale into account.

ImageModeler, which builds 3D models from 2D photographs, has been expanded to support 360-x-360-degree panoramas. Users can import panoramic cubes that have been created in the Stitcher panorama tool and extract models and textures. They can even create a fully textured 3D model of a room using only two panoramas taken at different points within it. Users can add an unlimited number of panoramas to increase levels of detail.

The version of Stitcher for use with panoramic tripod heads is designed to make the application easier and faster to use – and increase the output quality. Users no longer need to place images in panoramas manually, only entering basic information such as the number of images and horizontal rows. Stitcher then automatically works out which images go where and stitches them all together.

MatchMover costs £4,495 plus VAT and ImageModeler costs £3,125 plus VAT, although cheaper versions for individual 3D packages are available. Stitcher costs £500 plus VAT.

RealViz, www.realviz.com

From 3D to a Discreet real world

Discreet is shipping Reactor, an integrated extension for 3DS Max 4. Reactor adds real-time physics that realistically simulates cloth, rope, liquid, and hard/soft-body objects that can collide, bounce, break, and stretch.

Pitched at games developers, filmmakers, and Web designers, Reactor includes a real-time dynamic simulation viewer. Game developers can integrate a dynamic library directly into a game title. Features include rope dynamics that can simulate chains, rope, and hair; cloth dynamics; and rigid and soft-body dynamics that can create objects such as collapsing walls.

Discreet, www.discreet.com

OKI takes LED in colour printing

The C9000 series from OKI is the first colour LED printer from the company to go beyond 20 pages per minute (ppm), entering an arena that OKI believe will become the largest sector of the colour printing market in the next three years.

The C9000 series offers up to 21ppm for colour A4 printing, and designers can benefit from a speedy 11ppm for colour A3 printing. It can also print in mono at 26ppm for A4 and 14ppm for A3. It can also print oversize A3 pages.

The printer is built around OKI's single-pass colour digital LED technology that delivers printing at a resolution of up to 1,200-x-1,200dpi on paper up to 200gsm (art stock).

It includes a 64-bit PowerPC processor at either 400 or 480MHz. It offers 128MB to 320MB of memory as standard (depending on model chosen), though this can be upgraded up to 1,024MB for workgroups. These specs are enhanced by OKI's Multiple and Exclusive Graphic Accelerator (MEGA), which boosts RIP, colour processing and colour management speed.

The C9000 series also offers form overlays. Regularly-used graphics such as company or client logos and letterheads can be downloaded via the storage device manager to an optional hard drive, which they can be produced instantly when needed – speeding up print jobs.

The printer connects to computers using a USB or parallel interface – or to networks using an optional ethernet card. It includes a 550-sheet A4/A3 paper tray plus an 100-sheet auto paper feeder, a 500-sheet face-down paper stacker (with job offset for easy separation of documents) and a 100-sheet face-up paper stacker.

This can be increased through options including a second 550-sheet paper tray and either a third 550-sheet tray or a high-capacity feeder for 1,650 sheets – which increases the capacity to 2,850 sheets.

The C9000 series costs from £4,399 plus VAT, and is shipping to the UK from this month.

OKI, *01753 819 819*
www.oki.co.uk

Everything's OKI
High print speeds are promised by OKI.

LaCie turns onto LCD monitors

LaCie is entering the flat-pack market with its first LCD monitor – but can it live up to its award-winning CRT models? With a price tag of £1,795, LaCie thinks so.

Top-spec CRT monitor maker LaCie has launched its first flat panel LCD display. The Photon18blue is based on an 18-inch TFT LCD and is aimed at design professionals who have run out of space or can't deal with the weight of a full CRT monitor on their spindly designer-label desk. It weighs only 8kg and can be wall-mounted for those who've replaced their desk with a water feature.

The Photon18blue offers a maximum resolution of 1,280-x-1,024 at 60Hz and delivers a sharp, bright picture with vivid and accurate colours that will meet most designers needs, according to the company. It also has a 160-degree viewing angle, both horizontally and vertically, which allows groups of people to view the screen easily.

Users have access to a range of controls that you'd usually expect to find on a CRT display. It supports the RGB colour reproduction standard, and users can independently control red, green, blue, cyan, magenta and yellow while preserving the monitor's white balance. It can also be used in horizontal and vertical positions.

The monitor ships with a hood to remove unwanted light reflections and shadows, the first LCD to do so according to LaCie. The hood can also be used in both horizontal and vertical positions.

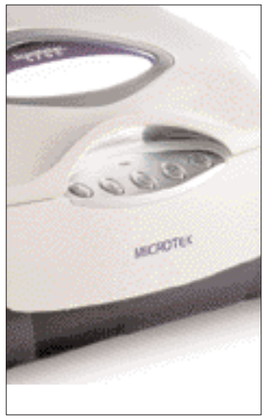
The Photon18blue costs £1,795.

LaCie has also launched the 75GB FireWire HDD, a 3.5-inch drive that offers 7200-rotation-per-minute speeds for around £400. Aimed at video professionals, the drive offers transfer speeds of up to 400 megabits per second and is hot-swappable, so users don't need to turn their computers off to attach or disconnect it.

Finishing up this month's new arrivals from the company is the 16x10x40 CD-RW drive, available with a SCSI-3 or IEEE-1394 (FireWire) interface. The drive offers 16x recording (so an entire disc can be burned in around four minutes), 10x rewriting and 40x reading. It also includes an 8MB buffer to allow high-speed burns without underruns. The FireWire version of the drive costs £339 plus VAT, while the SCSI-3 version costs £299 plus VAT.

LaCie, *020 7872 8000*
www.lacie.co.uk

ScanMaker doubles as lightbox



Shiny, happy scanner
Not only can the 5700 give good scan, it's doubles as a lightbox too.

The ScanMaker 5700 is the latest scanner to be announced by Microtek, and is shipping now. Top new features include a 4-x-5 inch lightlid, dual outputs and a series of one-touch buttons, which the company says will ease scanning operations.

And for space-challenged creatives, the FilmView lightlid includes a transparent media adaptor but can also be used as a lightbox. This allows users to check their slides or transparencies before scanning.

The 5700 includes both IEEE 1394 (FireWire) and USB interfaces out of the box. Microtek says this allows the scanner to give the best performance to newer, high-spec machines using the IEEE 1394 port, while being compatible with older Mac and Wintel machines that have USB slots.

The one-touch buttons allow users to complete common tasks with a single action. Tasks available in this manner include OCR, scan-to-Web, scan, copy and email.

Other features in the scanner include a 1,200dpi optical resolution, 42-bit input and output and hardware JPEG compression to keep files sizes down. It ships with Microtek's ScanWizard 5 scanning software, which was designed especially for use with the company's scanners – as well as Photoshop LE, ABBY FireReader OCR software, and Ulead PhotoExplorer. User can also buy LaserSoft's popular SilverFast scanning software as an option.

The ScanMaker 5700 costs £399.99 including VAT.

Microtek, *01908 317 797*
www.microtekeurope.com

HOT STUFF

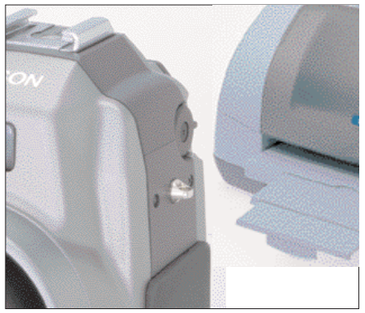
Agfa looks to Mac OS X
Future versions of Agfa's ScanWise and FotoLook scanning software will support Apple's recently launched new platform, OS X, says the company. Beta versions of the software will be made available for download from the Agfa Web site from July. ScanWise is the basic scanning software tool that ships with Agfa's SnapScan line of scanners. FotoLook is more advanced and ships with the professional DuoScan line.
Agfa, www.agfa.co.uk

Windows Media hits version 8
Microsoft has upped its multimedia arsenal with the release of Windows Media Audio and Video 8, as well as a new player for Macs. Microsoft's Video 8 codec technology allows near-DVD quality video images at 500Kbps, with 640-x-480 pixel resolution at 24 frames per second, says the company.
Microsoft, microsoft.co.uk

MarkzScout hits version 2.0
Markzware has announced the first major upgrade to its MarkzScout workflow assistant and pre-flighting tool. MarkzScout 2.0 includes a PDF creator, job flattening, enhanced scripting languages and improved integration with FlightCheck. MarkzScout streamlines the pre-flighting process by detecting problems and opening other applications to automatically correct errors. Job flattening separates individual files from jobs, processes them and then joins them back together. A cross-platform scripting language allows solutions to run in both Windows and Mac platforms without having to modify the code. Integration with FlightCheck has been enhanced. MarkzScout 2.0 costs £699 plus VAT. Markzware, www.markzware.com

Epson boosts digital input, output tools

New Epson camera and printer are first to deploy the company's newly announced Print Image Matching technology.



PhotoPC 3100Z and Stylus Photo 890
Working together, the Epson releases can combine to form a mini photolab – without needing a computer.

Epson has announced the first two products to use its recently announced Print Image Matching technology, as well as adding a new large-format printer. The matching technology embeds a proprietary colour profiling system in cameras and printers that is designed to match output to input to a much higher degree than was previously possible.

The PhotoPC 3100Z is a 3.3 megapixel digital camera with a 3x optical zoom. It has a 3x digital zoom and can interpolate images up to 4.84 megapixel resolution. It also features a shutter priority mode for taking clear pictures of rapidly moving objects. Other new features include improved start-up and shutter response times on previous models and a longer battery life.

The camera has a CompactFlash card drive, which appears as a drive on Windows or Mac desktops. It also comes with horizontal panoramic image software for stitching images together. It will ship in May, although pricing has yet to be set.

Working with the PhotoPC 3100Z will be the Stylus Photo 890. It's a six-colour printer with a maximum resolution of 2880-x-720dpi that offers edge-to-edge printing and a PCMCIA slot.

The PCMCIA slot allows CompactFlash cards with images taken by the 3100Z to be inserted via an adaptor and the images on them printed without needing to connect either to a computer. Images can be previewed using an optional colour LCD screen.

The printer offers 7.8ppm B&W printing and 7.5ppm colour. It connects to Macs and Windows PCs via USB and ships with Epson's PhotoQuicker 3 image-manipulation software. The Stylus Photo 890 will ship in May for £199 plus VAT.

The Stylus Pro 10000 is the latest addition to Epson's range of large format printers. Available in two configurations, the printer is a B0+ with facilities for six-colour printing at up to 1,440-x-720dpi or at speeds of up to 20 square metres per hour.

The standard 10000 uses QuickDry Dye-based ink, while the 10000CF option uses ColorFast pigment-based ink.

Other significant features found in the 10000 include large 500ml individual colour ink cartridges, and USB and parallel interfaces. A RIP solution will be available soon including RIP Designer XL software, an IEEE 1394 (interface card) and a RIP accelerator card.

The Stylus Pro 10000 costs £7,495 plus VAT, while the Stylus Pro 10000CF costs £7,995 plus VAT.

Epson, *0800 220 446*
www.epson.co.uk

CD-RW aims to make storage sexy
Formac has launched a new range of FireWire CD-RW drives that offer a futuristic design that will appeal to trendy designers. The Designer Series is available in three versions, based around top speeds of 16x, 12x and 8x. The entry-level CD-RW offers 8x write, 8x rewrite and 24x read and costs £219 (inc VAT). The mid-range offers 12x write, 10x rewrite and 32x read and costs £259 (inc VAT). The top-spec CD-RW drive offers 16x write, 10x rewrite and 32x read and costs £299 (inc VAT).
Formac, *020 8533 4040*
www.formac.co.uk

Chromix says ColorThink different

Chromix has released ColorThink, a new colour management application that includes nine tools to improve your control over both input and output colours. It can be downloaded now from the Chromix Web site, and costs $129. ColorThink is Mac OS only.

The central tool is the Profile Manager, which organizes profiles and allows users to turn them on and off with the ColorSync subfolder structure intact. There's also a Profile Inspector to view the contents of ICC profiles and a Profile Medic to repair them and re-enable invisible profiles. The Profile Medic can be used to find the source of many colour problems, says Chromix, and can perform a comprehensive 16-point check.

The Image Inspector works out colour sources of image files (including GIF, JPEG and TIFF) and can change these profiles if necessary.

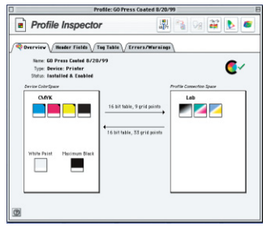
The Colour Lists tool allows users to read and display device or colourimetric values of lists and open measurement files from most common makes of spectrometer.

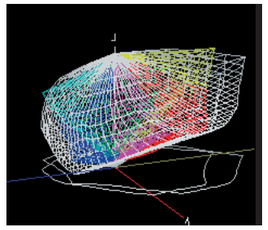
ColorThink can also create 2D and 3D graphs of colour gamuts, which can display more than one gamut for comparative purposes. Graphing features include the ability to graph profiles, colours, colour lists, and images in 3D Lab, Luv, or Yxy coordinates.

Users can view colour differences as 3D vectors using a unique vector-compare feature, says the company. Multiple profiles for accurate gamut comparison can be overlaid to judge reproduction suitability.

The last two tools are the Profile Linker, which can create ICC compatible device-link profiles for use in RIPs and colour servers, and the Profile Renamer, which allows users to edit profiles' internal and external names and add and remove file extensions.

Chromix, www.chromix.com

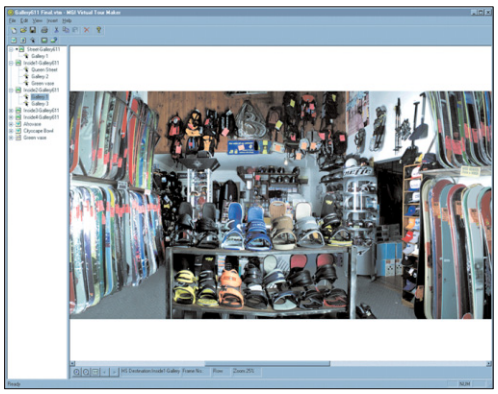




It's a colourful life
ColorThink offers more colour control than you'll ever need, probably.

The IIS has it for Internet 3D

MGI is gearing up to enable designers to create immersive Web sites that use VR 3D.



MGI has launched the Interactive Imaging Suite (IIS), a bundle that combines the company's imaging tools with its Image Server platform. It's aimed at design studios that want to build immersive Web sites that go beyond flat pages, according to MGI.

The creative tools are split into three main areas: panoramas, 3D objects and virtual tours.

IIS can create seamless 360-degree panoramas from a series photographs and compact it down to typically less than 100k. It can adjust for over 100 camera lenses (and custom lenses can be created) and automatically generates an HTML preview and code to be cut-&-pasted to Web development tools. Viewing panoramas requires MGI's Zoom Java Applet Viewer, which can be downloaded from the company's Web site.

IIS can also create 3D representations of objects by stitching together still images of it taken from different angles. The 3D object can then be posted to the Web. They can also be zoom-enabled, so site visitors can click on them to see areas in more detail.

The suite can also create virtual tours by linking hotspots in panoramas to other panoramas, objects and Web pages. Other features include the ability to add text messages that appear when the mouse is moved over elements and transitions to make movement between scenes appear smoother. Users can also zoom into areas to view higher resolution detail.

IIS also includes the Zoom server, which zoom-enables static images as well as elements created by the imaging tools. Images can be zoomed into by end users without need to have a plug-in installed.

The Interactive Imaging Suite costs £1,299 including VAT. The creative tools run on Windows 95/98/Me/NT, while the Zoom server runs on Windows NT, Solaris or Red Hat Linux.

MGI, *0800 973 830*
www.mgisoft.com

JVC Trojan cameras see an end to DV horseplay

JVC has announced two new professional-level DV cameras that push the boundaries of still-image capture from video units. The GR-DV2000 and GR-DV1800 Trojan series can capture stills at up 1,600-x-1,200 – as well as PAL resolution DV video. The two models are essentially the same, with the DV2000 including both DV-in and -out, while the DV1800 includes only DV-out.

Central to the cameras is a high-resolution, 800,000-pixel progressive CCD. This records every single frame in its entirety, unlike cheaper interlaced-CCD cameras that only capture alternate lines for each frame. This works with a high-band processor that restores the high-band components of the luminance signal that are lost in conventional processing and a progressive colour filter that generates a pure signal that boosts the vertical resolution to the PAL standard of 576 lines.

Moving into still images
New JVC digital-video cameras not only offer PAL DV video, but can capture a mean still image as well.

Capturing of still images up to 1,600-x-1,200 is performed using an AIS (Accurate Image Shift) len that takes two stills in rapid succession. Each still is slightly offset from the other, and the camera uses this information to interpolate the high-resolution image.

The cameras also feature two multi-coated aspheric lenses for reducing ghosts and flares, two independent optical low-pass filters, a manual focus ring and a hot shoe for a number of accessories including a video flash, an auto light and a zoom microphone. As well as a DV terminal the cameras also offer analog input/output ports (output only on the DV1800) and a slot for a SD Memory Card or MultiMediaCard (for still images). A USB terminal can also be used to download still images to a Windows or Mac PC – and a high-speed printer interface allows the camera to connect directly to a JVC digital printer.

The DV2000 will cost around £1,600 including VAT, while the DV1800 will cost around £1,400 including VAT.

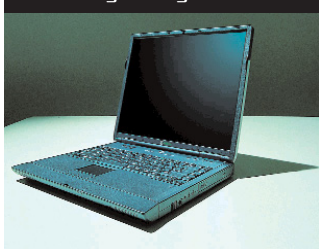
JVC, *020 8208 7654*, www.jvc.co.uk

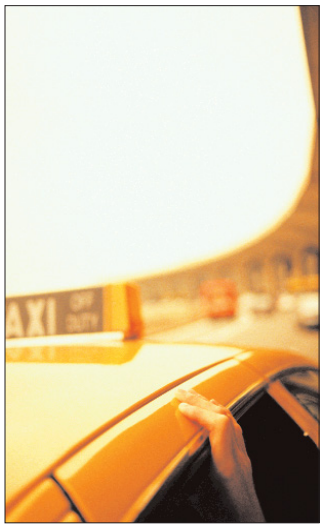
HOT STUFF

Second-generation DVD-R here
Mitsui has launched DVD-R 2.0, a new type of recordable DVD media for use in DVD-R drives such as Pioneer's recently-launched DVR-A03 drive (known as the SuperDrive when shipped with the Apple G4 733MHz PowerMac). DVD-R 2.0 discs cost £27 each. However, by the end of the year the company expects to the price to fall to below £10 per disc, as demand increases. Mitsui, www.mitsuimedia.co.uk

Alienbrain plug-in ready for XSI
NXN has announced that it will be creating a plug-in for SoftimageIXSI that allows the 3D suite to communicate with the alienbrain production management system for games developers. The alienbrain system is designed to ease the flow of materials from 3D artists to developers automatically. Models saved by artists are immediately delivered to developers in a secure way without the artist or developer having to work through complicated or cross-platform files structures. Softimage, www.softimage.com

Gateway Solo, but not alone
Gateway has announced the latest addition to its high-end laptop range. The Solo 9500 offers a whole host of possible configurations and costs from £1,549 plus VAT. The 9500 is based around a 15- or 15.7-inch screen, among the largest available in the laptop market. It offers a choice of Pentium III processors, up to 512MB of RAM and up to 32GB of hard disk space. It also has a modular drive bay system that allows users to hot-swap a variety of DVD, CD, CD-RW, and hard drives – as well as extra battery units. The laptop also offers ATI's Mobility M-4 graphics accelerator. Gateway, www.gateway.com/uk

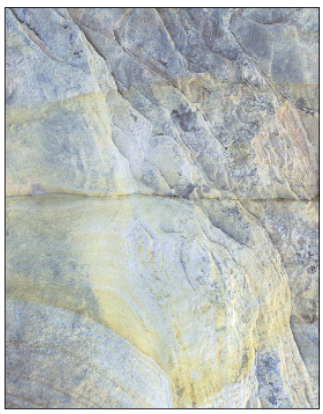




Work and play in the Image Bank

Work is the newest rights-managed collection to emerge from The Image Bank. The 520-page catalogue features images depicting people on the move and at work, and also infrastructure-type themes – satellite dishes, phones, computers, and so on. The collection employs somewhat atypical angles and depth-of-field effects to enhance the shots. Themes covered include *Business*, *Commerce*, *Communication*, *Finance*, *Industry*, and *Transport*. Prices start from £250 per image, depending on application and print run size, and are searchable on CD.

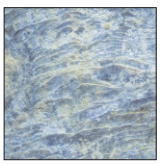
The Image Bank, www.imagebank.com, *020 7312 0300*

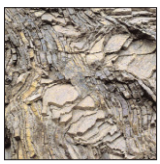


No stone unturned for texture

Desert Dolphin have released a new image collection focusing on stone. Fifty stone textures, ranging from lichen patterns from the Rockies to sandstone from the deserts of Utah, and even Hawaiian lava, have been captured and put into this royalty-free collection. The CD, containing 50 38MB images, costs $249 (about £174) and is available online.

Desert Dolphin, www.desertdolphin.com





It's all about Heritage

The Heritage Image Partnership has launched its new site, www.heritage-images.com. Such institutions as the National Museum of Photography, Film and Television, the Science Museum, and The British Library have made available previously unseen items from their collections. The wide variety of institutions involved means a wide variety of images in the collection, from impossible Klein bottles to fifteenth century portraits. Price varies according to application.

Heritage Image Partnership, www.heritage-images.com

The Science Museum/heritage-images.com

Win an Iomega HipZip MP3 Player

Digit is offering a fantastic MP3 player worth £289.99 courtesy of Iomega for the Star Letter of the month. Iomega's sleek new HipZip digital audio player combines affordable music storage on Iomega's PocketZip 40MB disks with support for licensed digital downloads of copyrighted music and spoken word content. For more information on the HipZip, visit www.iomega-europe.com

di@log box

Star Letter

Right to the Apple core

Pretty colours, mummy... lots of noises... people cooing and ahhing... burps and, well, messy stuff: a new baby is born. Mac OS X. But my question is not "is it cute?" – we know that, we know its parents. Rather, does it work? Pre-emptive multi-tasking whachumaycallits galore, all right, but will it run my software, output to my printer, take input from my scanner, and connect to the Web?

Regrettably, I already know it won't run my software except in Classic, which kind of defeats the object. And I'm not about to rush out and spend hundreds if not thousands on upgrades and new stuff until I've seen it thoroughly tested. So let's see some real tests there, *Digit* dudes, not just the pretty pictures that we saw with the beta. And in the meantime, don't forget millions of us out here still running pre-X systems: long may we see that little note on your CD pages, "works with System 8.0/9.0 on the Power Macintosh".

Undoubtedly I'll upgrade to the ranks of X-users eventually: Apple have left us no choice if we want their latest kit. And I have to confess, I do: it's both Apple's shame and glory that their name seems synonymous with 'no choice'. Having got that off my chest: great mag – keep 'em coming.

Phil Groom

Starry-eyed

Regarding Kirsty's star letter last issue. Are you sitting down? We *could* share our resources so that everyone has an equal share of the pie (win/win) – instead of competing for resources the way it's been done for the last billion or so years (win/lose). All that's needed is a change of heart. Easy, eh! Or do we *really* have to have an apocalyptic catastrophe before The Next Future arrives?

Zennor

Web site plans

Are there any plans for putting up the reviews of CD-RW drives that appeared in one of your issues from last year on your Web site? I've lost the issue that the reviews appeared in.

Jason Kinnison-Holmes

Yes, there are, or you can use our efficient back-issue service by calling 020 7831 9252.

Contact Digit

Get creative issues off your chest – and win prizes to boot. Send letters to dialogbox@digitmag.co.uk

Please note that personal correspondence cannot be entered in to.

Foot in mouth

I live in West Devon and on Sunday afternoon I drove from the village and I passed a field where men in protective suits were using a JCB to dig a very large hole. Piled next to that hole where the carcasses of dead cattle. Twenty-four hours later I was driving past in the other direction with the May 2001 issue of *Digit*; the men in protective suits had almost finished filling the grave. Later that evening I read Simon Jary's column headed *Beware digital foot and mouth*.

Frankly, I cannot remember ever having read anything quite so crass. Yes, I agree that there are superficial similarities between the virulence of Foot & Mouth disease and computer viruses. But any reasonable person with the slightest grasp of the devastation caused to impoverished rural communities by the outbreak of Foot & Mouth would – and should – have the humility and decency to draw a sober parallel and let the warning speak for itself. Instead, we're treated to Mr Jary's ludicrous scenario that would appear to give grounds to belief that he's in the advanced stages of new variant CJD.

In the interests of fairness, I concede that the first sentence of the article was accurate. But after that Mr Jary managed to lose all contact with reality. What idealized stereotype of the countryside does he subscribe too? High bandwidth communications? If we're lucky we might get ISDN, but our exchanges will be among the last to get ADSL and even then most subscribers live too far from the exchange for that to be an option. 3G? Again, we might get that eventually, once all the major urban conurbations have been saturated. But if the current generation of mobile telecoms is anything to go by you will find us all standing outside in the rain searching for a signal that doesn't drop out.

Now compare all of that with the potential plight of urban creative professionals. We see their work everyday on the Web, in magazines and on TV. It's perfectly clear that most are overpaid underachievers. Data culls! I would be laughing if it weren't so offensive and insensitive. If there really are creatives out there who have failed to grasp the need for regularly updated firewalls and virus scanners then they certainly do not have the right to call themselves professionals and can consider themselves prime candidates for culling.

Andy Rockett

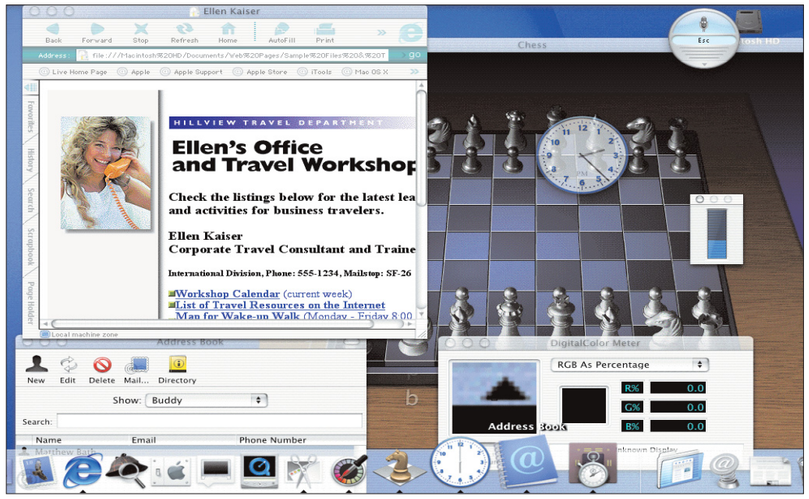
At Digit we completely understand your point of view, and regret any offence the article caused. The utter devastation of the countryside through Foot & Mouth is very real and very painful. However, the article raised the valid 'what if' scenario of the outcome of a digital version of Foot & Mouth that was as seemingly uncontrollable. The loss of livelihood among creatives – as with farmers – could be equally devastating. We must all ensure that viruses, be they binary or biological, are caught and eliminated.

Background processing

I think the trade ebook (Grisham, Archer, etc) will struggle to take off in any big way – can you see anyone taking these to the beach, reading from a screen on a hot summer's day or in the early hours of the morning? Maybe, but I'm not convinced. If I were in trade publishing, I would exploit this as a great marketing opportunity to support and perhaps increase sales of the 'treebook' – a phrase I hate!

The real win for ebooks is in the area of academic study. Textbooks average £30 in the UK and the prospect of paying maybe up to 40 per cent less must be appealing for a student. I would also argue that the ebook is a red herring and maybe superseded even before it's arrived by the 'slice and dice' models offered by companies such as Ebrary or Questia. Most students do not need the entire content of a textbook and the ability to read cross-reference and print/download sections at a fraction of the cost of of a full-priced textbook will be the way forward. I don't pretend to know the answers, but I truly believe the main benefactor of this new technology will be the academic community, although a word of warning – wasn't the CD-ROM supposed to replace the book?

David Kelly
Swotbooks, www.swotbooks.com



A design step backwards

Right from the launch issue I have always admired *Digit* for its slightly different slant on content, design and the way it deals with the many aspects of the creative world of the PC and Mac. Until your April 2001 issue that is. Has your designer gone travelling and been replaced by an inferior understudy? What happened to the groovy typography and layout that made your magazine different and a step away from all those other boring mags? The new headline font Dungeon is hard to read, inconsistent in terms of weight on the eye and looks like a system font. Send it back to the basement from whence it came. Everything is sticking to the four column grid like glue. Please turn the snap-to-guides function off quick before my eyes fall asleep. What happened to all those quirky captions? Come back issues 1-33, we loved your design and layout.

Andrew P Smith

We always welcome ways to improve our design, and the changes were made in order to provide clearer access to the content (which hasn't changed – and we'll still do quirky captions), something many readers had been pushing for. Suggestions to the usual address.

Imaging all the people

Could you help me understand the legal position regarding the submission of images of people to magazines? I have over the last few years taken various photos of people, including numerous ballet shows (and produced digital versions of the images). Does the person in the picture have any rights over the usage of the picture in a magazine or such? If so, how do you get to see pictures with more then ten people in, as you would never be able to get everyone's permission? Further to this, would the same rules apply if you submitted work to a photo stock company? Or even if you used video footage of people in a documentary film?

Tony Bartlett

It's best to read up on the subject, but here's the answer in a nutshell. Images of people taken in public places, such as a park, can be used and published without the person's permission, provided they are not images of children. Pictures taken at private events, such as ballet performances, need the permission of the organizer (as the show is a work of art, hence copyrighted), but not of each person. Any other images need a model release form to be signed (or signed by a parent), and yes, the model does have a say in how you use that image. The same applies to photo libraries.

Clearer digital video editing

I have a DV camcorder and a PIII 866 computer, and I would like to edit my video films. Is the solution as easy as buying the Matrox RT2000; installing it inside the computer (hopefully plug-&-play); load the software and away you go? I've been put off by the Matrox Web site list of compatible devices and the lengths you apparently have to go to with installing a variety of patches. It sounds a bit like a minefield so I wonder if you know anyone who has performed this operation without too many problems?

Norman Wall

RT2000 is no more particular with its devices than most other DV-editing cards, so remember to check the compatibility of any system before buying.

Avid D-Press DV

I was reading your review of Avid Xpress DV 2 in *Digit* #35 and was suddenly struck by the claim that it could export to MPEG-1, MPEG-2 and MPEG-4. Further Web research revealed that the MPEG-4 claim was erroneous. It can export to Windows Media which can use the MPEG-4 codec. That's not the same format as real MPEG-4, and it's somewhat unfortunate that Microsoft chose to name one of its codecs MPEG-4, as it's highly confusing. There's an explanation regarding this at: http://listproc.ucdavis.edu/archives/digvid-l/digvid-l.log0005/0006.html

Mark Mulrooney
Oasis Television

Mac OS X icons

I was pleased to learn about the improvements Apple has made with OS X in your preview (*Digit* #35), but I can't believe how naff the design of the company's icons are becoming. No doubt the 'mechanics' of Aqua are superb, but surely Apple is one of the best placed companies in the world to garner a more sophisticated look for the interface? As most of its users are aesthetically aware, I think they would appreciate something more stylish and inspirational to stare at all day.

C Narain

Shirt off our backs

I buy your mag every month and love it and the first page I turn to is Design Solutions. I have even used plenty of tips – on one occasion I had to use an Illustrator tip for a client's brochure which saved my butt!

Danielle Tapper
Western Australia

The winner of the RealNetworks Streaming Media Starter Kit competition from Digit March is: Mr Douglas Reynolds, Alfreton, Derbyshire.

Whoops, apocalypse

My phone is ringing and I run back into my office. The light is streaming on to the bleached blonde wood of my desk in one of those rare bursts of winter sun. I pick up the phone.

"Hello."

"Michael Parsons?"

"Yes."

"This is the Global Media Elite."

I sit down carefully, open my notebook and find a pen. I know my lines when it comes to digital design.

"What's the story?"

"The story now is two flat quarters and a micro bounce in the third. Then gangbusters in the fourth quarter. Everyone chill out. The global economy is going to make it. Digital content creators will be fine. Firm, optimistic, serious, sober, but essentially positive."

My neck is scrunched to one side as I scribble.

"'But with steel.' Got it."

The phone goes dead.

I boot up my copy of Microsoft Global Media Elite EX and hit the address book. The names of the 20 most important journalists in the UK pop up.

I start dialling, and put on what we like to call "The Voice" – authority, compassion, focus – James Earl Jones with just a hint of Jeremy Paxman.

"Hello."

"This is Richard Lambert. How did you get this number?"

"This is the Global Medial Elite."

"Oh. I'm sorry. What's the story?"

I tell him.

After I've made all the calls, the phone rings again.

"Michael?"

"Yes."

"It's Al."

I stand up, as always, for the Chairman of the Federal Reserve, Mr Alan Greenspan; a man whose boots we are not fit to lick.

"Yes sir!"

"How am I doing? 'The degree of retrenchment will presumably be limited...' Think they bought it?"

There's a long pause.

"Well, sir, on top of the Bush thing, it's all a bit embarrassing."

"Fucking tell me about it. One truck driver with a box of butterfly ballots crashes his van into some Okefenokee Swamp, and we get stuck with laughing boy's teenage son for four years. Why, I'm thrilled."

"And to be honest, sir, the tax cut thing wasn't too convincing."

"What was I supposed to do? Even a schmuck like Dubya gets one free ride."

"I know, sir, but it's sort of humiliating seeing you submit to the naked greed of the administration with absolutely nothing to hide behind. We could see you were embarrassed."

"Yeah, well I'm a big boy. Has the Global Media Elite mobilized?"

"Yes sir. I've taken care of the UK. But... "

"What is it?"

His voice is thick with decades of fiscal prudence and political suspicion.

I clear my throat. I've never done this before.

"Well, sir, we've worked together for years, sir, and I've always tried to do my bit for you, sir, and..."

"Spit it out, kid. I know when someone's about to pick my pocket."

"I'm scared. What's going to happen?"

There's a long pause, and I listen to the crinkle of a fine Havana cigar being rubbed next to his ear.

There's a long exhale, and I imagine the smoke pouring from that mouth that knows all the secrets, and that has kept them for so long, counselling presidents, creating billionaires, rescuing financial institutions, plunging the Third World into hell. "Frankly, Michael, I haven't a clue. I'm baffled. Buy gold, fresh water and an automatic weapon. We're in big trouble. I have a plane standing by. But keep it quiet. It's only a six-seater."

Reply and comment to dialogbox@digitmag.co.uk

MICHAEL PARSONS

[Fucking tell me about it. One truck driver with a box of butterfly ballots crashes his van, and we're stuck with laughing boy's son for four years]

Reviews

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Digit ratings

- 5.0 The best product in its class
- 4.5 Fantastic package, almost perfect
- 4.0 Highly recommended
- 3.5 Above average with some flaws
- 3.0 Average
- 2.5 Below par with serious limitations
- 2.0 Fundamentally flawed
- 1.5 Lacks any redeeming features
- 1.0 Avoid

Digit Best Buy

The prestigious *Digit* Best Buy award is only given to products that are in the top-flight of their class. The product must offer professional creatives compelling design advantages, leading the way in its field. *Digit* Best Buy products are compelling solutions, often delivering innovative technology or unique tools, or simply being the best of its kind.

Digit testing

Digit brings you exclusive UK reviews of professional creativity packages – and when we say exclusive, we mean exclusive. *Digit* only reviews the finished versions of software packages – the same version you end up buying. All products are submitted to the leading IDG/*Digit* labs for testing – making *Digit* reviews ones you can trust. All tests are carried out with benchmarking software, and *Digit* reviews more creative products every month than any other UK magazine.

Buying notes

All prices in product reviews are listed without VAT added (17.5 per cent) and are correct at press time. Some manufacturers are unable supply RRPs (recommended retail prices) by law, in which case an average street price will be given.

Online review

Digit Online (**www.digitmag.co.uk**) for all your review needs, with exclusive reviews constantly updated.

Digit / EXCLUSIVE

Electric Image Universe

Although lacking in some sophisticated tools, EI Universe is great for mainstream tasks and heavy polygon scenes.

Format

Price
£1,388 plus VAT

Company
Electric Image
electricimage.com

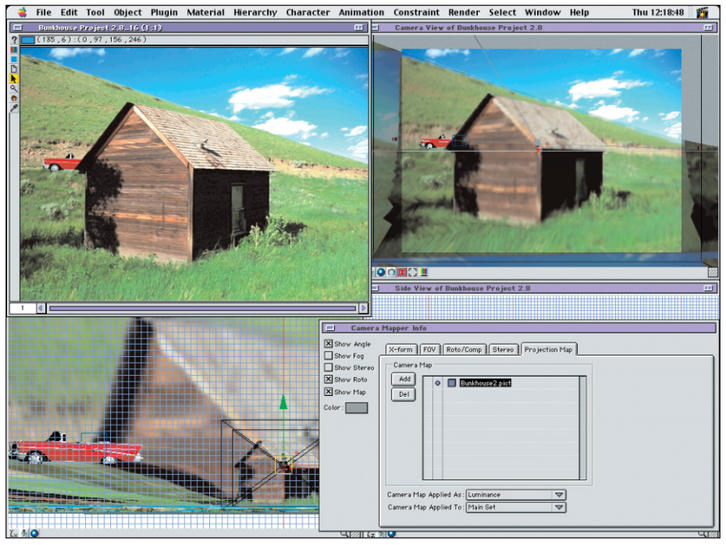
Contact
Gomark
020 7731 7930

Digit rating
4.0

Electric Image, the company that makes Electric Image Universe, is one of 3D's pioneers. It was responsible for creating the first truly professional 3D animation system for the Mac and arguably the world's fastest rendering engine. Formed back in 1987, the company was originally created as a production facility to create 3D animation and effects for motion pictures, and developed their own 3D software and rendering engine for that purpose. Electric Image the 3D suite was born, and since then the software has gone from strength to strength.

Electric Image version 3.0 – dubbed Universe – is the first version that will be available on platforms other than the Mac, so it marks a significant new chapter in the history of both the company and the product. Universe is available for Macintosh, Windows and Solaris – and to facilitate the cross-platform deployment, it has been substantially rewritten.

The last version of Electric Image, 2.9 shipped with a separate modelling application, EI Modeller – and so does Universe. This can slow work down – but integrating the two packages into a single unified environment was probably too complex since they're based on very different geometry technologies.



Camera mapping is a technique used to create realistic scenes using photographs projected on to geometry. ElectricImage's support for Camera maps is superb, and they can be used to create a variety of effects.

Universe Modeller uses a hybrid Surface/Solids modelling system based on ACIS from Spatial Corporation while Universe Animator is solely polygonal-based.

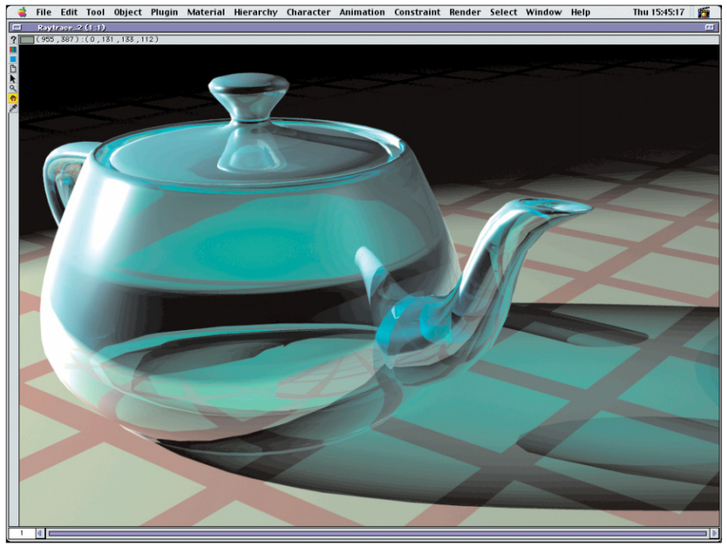
One of the main, practical features that Universe has gained is OpenGL display. Previously, Electric Image relied on a software-rendering display system that lagged behind other products. The new OpenGL system is much faster and feels comparable to competing systems such as LightWave and Cinema 4D XL. However the software display is still available and when its shading is set to Phong, it provides superb quality results with extremely accurate feedback of lighting and materials. This isn't so good for animation tests but useful when creating lighting set-ups and materials.

Rendering is unchanged in its implementation – there's a separate rendering application called Universe Camera which launches when you create a test render in Universe Animator (no test rendering is available in Modeller). When it comes time for the final render, this is the only application needed, so RAM requirements are minimized. Camera can also be distributed to different machines on a network and across platforms without the need for extra licences. Renderarma is the batch-processing utility used to schedule rendering jobs to all the Cameras on the network. It's a well-designed system that makes distributed rendering a painless proposition.

Raytracing

Universe Camera differs from its previous incarnation in one major way. It fully supports raytracing for reflections and transparency, a feature that has been missing from the program since its creation. Not having raytracing is one of the reasons that Electric Image has been able to justify its claim of being the fastest renderer in the world. However the new Camera is just as fast as before, and when raytracing is enabled it can easily perform as well as any other speedy renderer – though of course it's slower than when it is not raytracing. Raytracing is enabled selectively, both by the software and by the users. Only portions of the image that actually require raytracing receive it, so speeding the process. You can also select raytracing per object and per material, which is very handy.

In the Material editor there's a switch for Occlusion in the raytrace reflection options. This feature uses raycasting to determine a more accurate reflection when using the built-in mirror and environment map reflection schemes and is a great way to get better-looking results without using full raytracing techniques. Refraction is an all or nothing type of effect but



Universe has a new raytracing renderer, which features support for area shadows, and transparency with refraction and reflections.

Rendering
Universe now has a separate renderer called Camera.

Universe's raytraced transparency is still remarkably fast.

What hasn't changed is the quality of the rendering. Electric Image has always produced top quality output and Universe is no exception. What's more, unlike many 3D packages excellent quality rendering can be achieved with the most basic of settings. A little bit of work with the materials and lights produce some stunning renders.

Along with raytraced materials you can now raytrace shadows too. Hard shadows are possible with a flick of a switch where previously you had to use massive shadow buffers to get the same result. Universe also supports raytraced soft shadows, sometimes called area shadows. These produce very realistic shadow edges that vary their dispersion depending on their distance to the shadow-casting object.

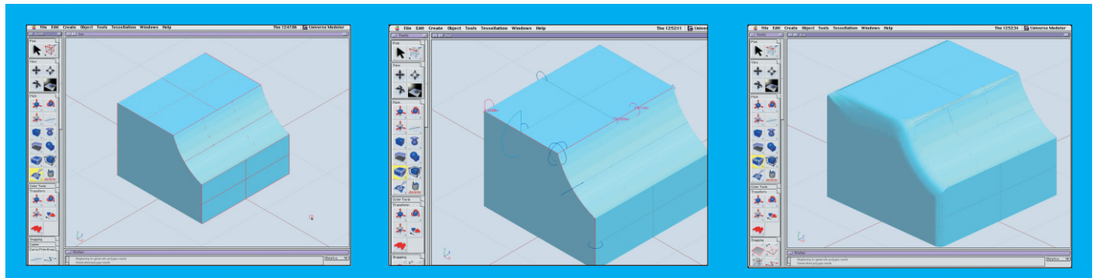
Light types have not changed. Universe supports Radial, Spot, Parallel, Ambient and Tube lights, and though area shadows are supported for any light type area lights themselves are not. Master lights are a new feature that let you control any number of lights with a single interface. All lights linked to a master light take on its properties meaning that you can change all the lights in a single action.

Another of the program's strengths is its Material system, which offers huge scope for all aspects of an object's shading: including excellent specular control, a unique gloss option, diffuse, reflection and transparency edge attenuation, separate ambient and luminosity control, translucency, glow and glare and displacement. Aside from systems that use shader trees, this is one of the best material-editing systems around. Each channel can use bitmaps or shaders to control its effect, and Universe comes with a good selection.

Five new shaders include one for anisotropic and layered specularity, another for creating thin film effects, and three that introduce additional illumination models. Gooch adds the ability to create subtle non-photo-real shading, good for illustrations and technical renders, and Oren-Nayer offers a broader range of matte diffuse shading with the option of Phong-Blinn specularity.

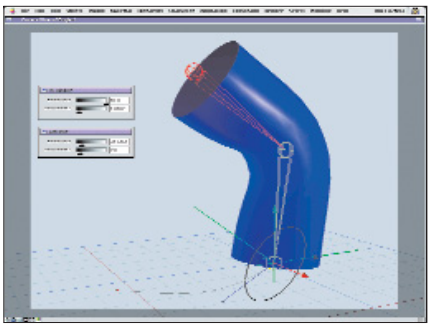
→

Walkthrough · Creating multi-radius rounding

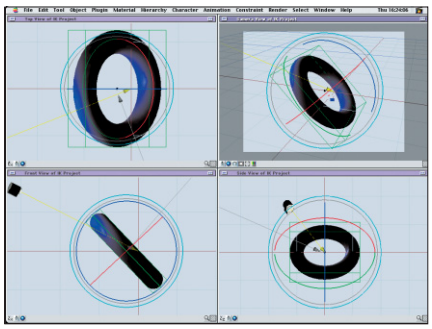


A solid cube primitive is added in Modeller. Before rounding, the cube is shaped a little using a knife. This cuts away a portion of the cube using a circle. Edges requiring rounding are selected using the Edges pick filter. A blue circle appears showing you the round radius. You can edit this in to create oval bevels and change the radius at different points along the edge. Double-clicking accepts the settings and performs the rounding.

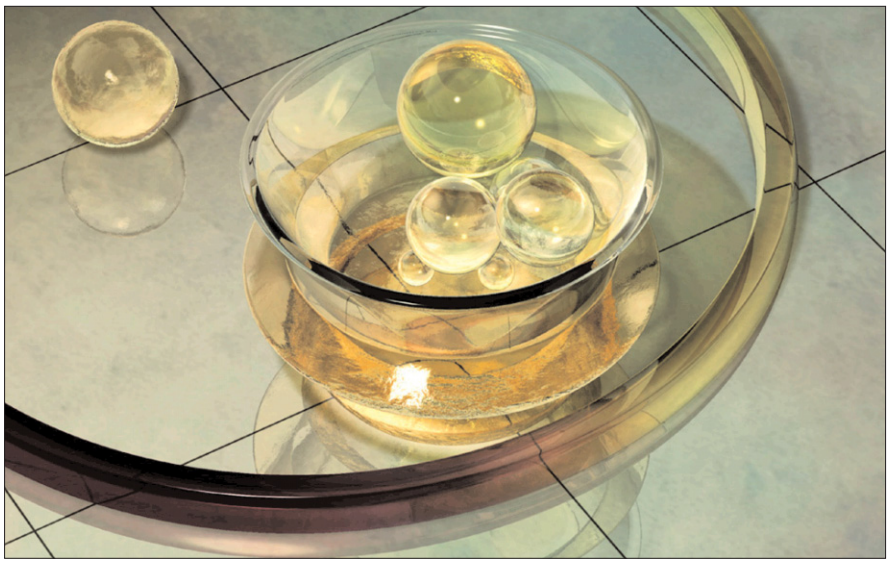
Electric Image Universe



The IK system has been improved beyond recognition. Universe supports industry standard IK handles and solvers, complete with pole vector and twist controllers like Maya. IK is respectably nippy but was the cause of a couple of crashes.



The new interface extends the purple theme introduced in version 2.8. In Animator all objects display transform widgets like Maya's (and other apps), which can be used to constrain movements.



Universe Camera now fully supports raytracing for reflections and transparency.

The third is Pearl, which lets you independently vary the reflected wavelengths of light from a surface in three different bands. Option noise modulation can be added to create very realistic pearlized surfaces.

An annoyance is that the sliders used to control the various fall off options have become very difficult to use. Their useful range seems to be concentrated within a tiny distance at the one end of the slider; the other 90 per cent of the slider's travel causes very little change. In previous versions this was not so.

Character animation

Electric Image has worked on the suite's dubious character animation tools and produced a much better system in all ways. The new IK and skeleton system works more like other programs and features assignable IK handles and three different solvers; Pseudo, Two Bone and Minimizer. There are also pole vector controls to help with joint flipping and a Twist control too.

The pole vector and twist features are right out of Maya, but Universe is still way behind the pack in terms of character animation features. The good news is that it's on the right track, and things can only get better. Although it's version 3.0, technically it's really a new product with associated glitches and rough patches.

The Universe Modeller, based on a hybrid surface/solids technology, has undergone serious improvements too. Non-uniform scaling has at last been implemented, and there are multiple undos available in UberNURBS.

Aside from functional improvements, there are lots of interesting new features too. Space Warp and Lattice deformation has been added, and the NURBS toolset has been extended with many more tools for editing NURBS surfaces – including Add/Remove Isoparms, Surface Continuity including T-Stitching and corner continuity for stitching three surfaces at their corners.

Laws surfaces are a new addition. These are surfaces that can be created from mathematical formulae that you can enter, though there are a few presets supplied. Rounding has been improved with support for multi-radius rounds (oval rounds) and different radius rounds per edge.

Good features include the Body Offset tool for creating inside or outside 'skins' on objects and Local Face translations for extending objects. Along with undos, UberNURBS has a few more tools including Uncover Loop/ Cover Rim for creating holes and Merge Two Edges, which can be used to join two separate UberNURBS objects together.

The biggest problem, at least aesthetically, is the inequality between Animator and Modeller. The Modeller features a good interface with clear icons and menus, while Animator has a totally different interface, totally different icons and different key commands. They speak a different technological language so data transfer between them is necessarily complex – requiring the models in Modeller to be tessellated and exported to FACT format before they can be opened in Animator. Better integration between the two is needed, but at least the tessellation options in Modeller are comprehensive.

Some may argue that trying to compete with the likes of Cinema 4D, LightWave and Max in character animation is a waste of time, and if this type of work makes up a large portion of your 3D output you'd best look at the other options. The new character tools do make this sort of work less of a headache in Electric Image and for occasional use it's fine. The new modeller is still out on its own in many areas. It's not quite an all-weather system, and it's probably wise to have other modelling apps to hand, but it's capable of stunning results difficult to achieve elsewhere.

The bottom line is that Universe is a mixed bag. If render quality and speed are of the utmost concern then Universe is a great choice. For most animation tasks it also provides a deep toolset with plenty of nice little quirks to keep you out of trouble. It lacks the more sophisticated tools like dynamics, expressions and a proper particle system (although a basic one is included) found in competing systems. However, for real meat-and-potatoes 3D work, digital matte creation and scenes involving huge numbers of polygons, it scores very highly indeed.

Mike Williams

Features

- OpenGL support.
- All new IK system.
- Three IK solvers.
- Available for Windows, Mac and Sun systems.
- Excellent camera mapping and multi-pass rendering support.
- ACIS-based, resolution-independent modelling.
- Undo system in UberNURBS.

Final Cut Pro 2

If you've the money to invest in a real-time card and dual displays, then Final Cut Pro can make an excellent NLE.

Format

Price
£706 plus VAT

Company
Apple
www.apple.com/uk

Contact
Apple
0800 039 1010

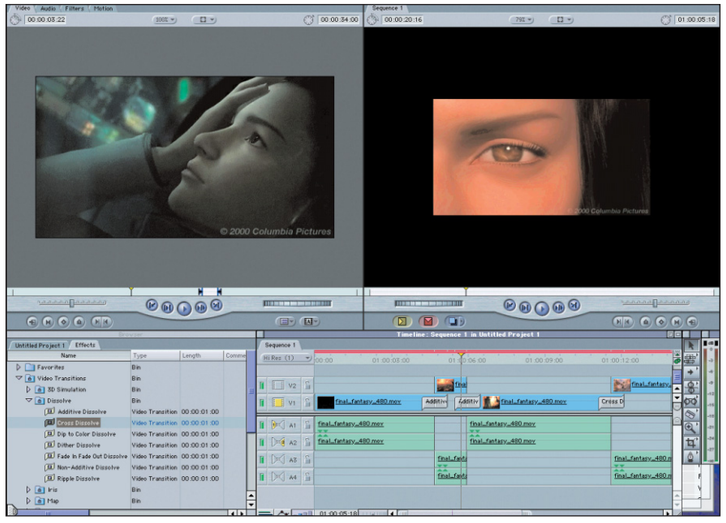
Digit rating

Final Cut Pro has always been an odd kettle of fish. When designing it, Apple took the likes of Avid and Media 100 (both of whom have a longer Mac heritage than a Windows one) as its starting point and built a low-cost powerhouse that would be as happy to run as a software-only solution as it would with a hardware board in tow.

However, these two arenas never seemed to mesh in the product. Lower-end users weren't happy that the package ran far more slowly than its competitors on cheaper machines, and its interface design really needed a dual-display set-up to work properly. High-end users were limited by the lack of support from board manufacturers, until Pinnacle released CinéWave (a Mac version of the Targa board) late last year.

Events have now caught up with Final Cut. Even the cheapest G4 now on the market can run Final Cut quite happily, a couple of 19-inch monitors costs a lot less than previously, and there's a wide range of boards available from CinéWave to Matrox's RTMac via boards from Digital Voodoo and ProMax. And Apple has just updated the software to version 2.0.

Apple has put a lot of effort into creating the engine to allow Final Cut to run real-time. The ability to work in real-time, without having to wait for effects to render, opens Final Cut up to a whole new audience used to this in variable quality from higher-end solutions down to Windows-based solutions such as RT2000. My only current concern is with the quality of the available Macintosh boards, which are still first generation compared to Windows solutions, but hopefully these should stop being poor cousins within a few software revisions.



Apple Final Cut Pro 2.0's interface borrows stylistically from higher-end tools, but still really requires two screens for users to work comfortably.

Improved interface

The rest of the update, while definitely worthwhile, is not likely to make you whoop with excitement – but for users of version 1.25, it's likely to reduce both your blood pressure and the number of late nights you have put in. The new features concentrate on tidying up the UI and allow you to reduce that mess of footage that's currently clogging up your hard drive.

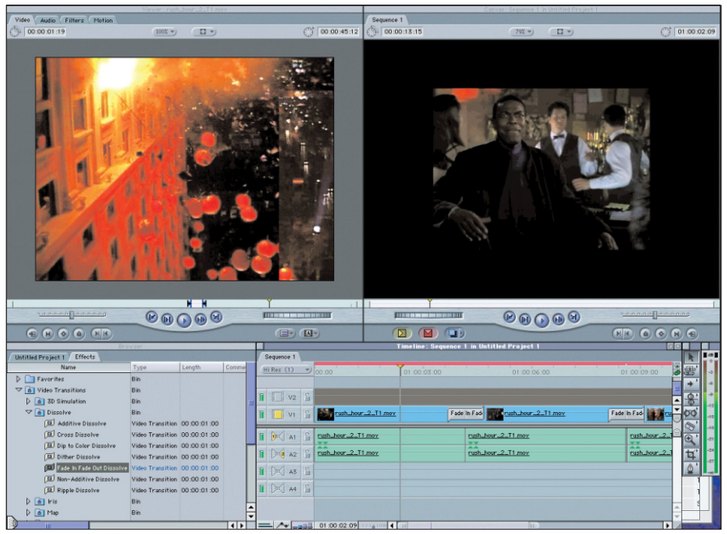
Putting together complex projects relies on having good asset management tools – and Final Cut was severely lacking in these until now. Now users have access to bins (on top of folders), the Media Manager for instant removal of unwanted footage, and the Render Manager for removing unnecessary render files. There's also a Reconnect Media command to remove broken links between project and source clips – and an Analyze Movie command to retrieve just about any form of information about a piece of footage (including data rate, frame rate and video/audio codecs).

Bins allow users to colour clips to make them easier to see (though there's still no thumbnail mode) and sort them by any category displayed. However, it's the Media Manager that's going to mean the most to users, especially those short on disk space. It allows you to chop out unused media, either entire clips or just the parts that aren't used, which is ideal for when projects have been finished. You can also export projects with only the used clips intact, which is useful for teams.

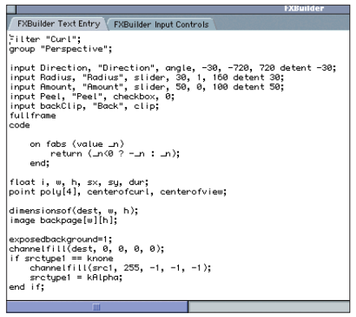
Renders

The Render Manager is another great device for removing leftover render files. This is useful for getting rid of space-gobbling renders from the beginning of projects while you work on the end. However, it has no facilities to get rid of the leftover half-files that fester out-of-sight on your drive when a render crashes your machine and eat up lots of space until you manually find and delete them.

The rest of the updates are more minor but useful. For example, Final Cut adds Start/Stop Detection, which looks through tapes and automatically spots breaks to create multiple scenes for you (sound familiar? It was invented for iMovie). This doesn't always work, but if your cameraman leaves little bits of black space between clips it's a handy feature to have.



Support for real-time cards means no more waiting around for your effects to render.



High-end features like 24fps and EDL creation support allow tools such as the FXBuilder, for creating your own effects, to become worth the effort.

Capture

Other improvements include support for 24fps footage (if you work with film) and an EDL creator, which when coupled with Final Cut's support for HDTV or film resolutions, allows a Final Cut-powered G4 to make a decent offline machine. Larger set-ups will also appreciate the much-improved capture preference dialog, allowing you to quickly change settings when capturing from a different camera.

There's also an animated text generator, which is as good as you'd expect from a built-in CG. Better is the addition of VU meters and support for OMF format audio. BIAS's PeakDV audio-editing tool is also included, giving Final Cut decent audio capabilities at long last.

Other bundled pieces of software include the ubiquitous Cleaner 5 EZ for compression to Web video formats, Cinema 4D Go for basic 3D modelling and animation, and Commotion DV. This is the cut down version of the respected compositing tool which gives you access to some excellent tidying-up tools.

Final Cut comes with a decent-sized manual and some tutorials (at last), and an apparent performance upgrade – including true multi-processor support. Final Cut Pro 2 did show an obvious speed boost but how much of this is due to refinements in the program and how much is due to the power of the G4 needed to run it is unsure. The software still takes a long time to render materials, although the end results are excellent.

Final Cut Pro 2 is a high-quality, powerful tool, but users should think twice before using it without a real-time video card.

Neil Bennett

Features

- Support for real-time editing boards.
- Full implementation of bins.
- Many extra media management features.
- 24fps editing supported.
- EDL creator.
- Scrolling text generator.

Walkthrough · Media management in Final Cut Pro 2

Final Cut Pro 2 includes an excellent set of asset management tools. Clips can be arranged in bins without ties to folders, and can be searched in many ways. The new Media Manager allows you to easily dispose of unused or unwanted media. Also, if you are unsure of the quality of a piece of footage, you can use the Analyze Movie command to learn everything you need about a clip.

Digit EXCLUSIVE

RTMac

An excellent solution that makes Apple's Final Cut Pro a serious contender – though it's not as good as the RT2000.

Format

Price
£699 plus VAT

Company
Matrox
www.matrox.com

Contact
Matrox
01753 665 624

Digit rating
4.5

Features

- Hardware board and breakout box.
- Analog audio/video in/out.
- Three layer real-time editing using Final Cut Pro 2.
- Real-time broadcast effects using Matrox Flex3D.

Digit BEST BUY

Well, it's finally here. The announcement of the RTMac was the lynchpin to Apple's apparent renaissance at last year's NAB show in Las Vegas. It's been delayed nearly a whole year – waiting for Apple to finish Final Cut Pro 2 – but it's definitely worth the wait.

RTMac is the first product to make Final Cut Pro a usable solution without the need to spend over five grand, as with Pinnacle's CineWave. RTMac is made of three main components – an analog breakout box, a selection of effects for Final Cut Pro, and a combination hardware board that slots easily into a G4 Mac. The board includes both a video-capture card and a graphics card (allowing you to turn your Mac into a dual-display suite by just connecting another monitor to the RTMac card) – as well as powering 2D and 3D DVEs within Final Cut.

Unlike its Windows brother RT2000, RTMac doesn't come with an editing application. It currently only works with Apple's £700 Final Cut Pro, although drivers that permit it to work with Adobe Premiere should become available in the near future.

RTMac sorts out Final Cut's two main problems for conventional Mac video editors – the need for a dual-display set-up for the interface to work properly and the interminable wait that happens every time you change something while Final Cut renders. The card outputs an excellent VGA picture, which could put your original card to shame.

The plug-ins that ship with the RTMac are what you're really buying it for. Using Final Cut Pro in real-time shows just how powerful it is. Both 2D and 3D transitions and effects can now be handled in real-time – as can opacity and alpha keying. RTMac can work with two streams of native DV or analog video in real-time, plus a single graphics layer (which can include Photoshop documents with layers as long as there aren't more than two). It can handle an effect and a transition at the same time without motion blur – or a single effect with motion blur.

The real-time system works very well as long as you remember the constraints. The effects include most of the common standard and the output quality is as good as you're going to get in this price bracket. My only gripe is that there aren't as many as with RT2000.

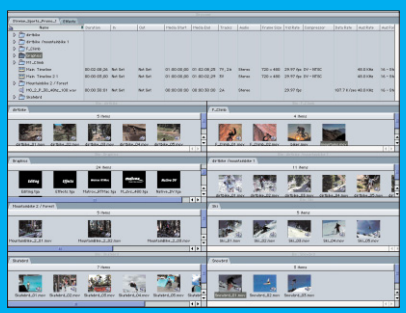
The final part of the RTMac, the breakout box, is the same as RT2000's – although it shares the same translucent grey as your G4. It has both composite and component video inputs and outputs (for both export and connecting to an external PAL monitor). Analog video-capture quality is good for a sub-£1,000 product.

DV is still captured through the standard Mac FireWire ports as if the RTMac wasn't there. This is what defines RTMac. It's less of a capture solution, as most users will capture using Apple's own DV system, and more of an editing accelerator. At this it does an excellent job.

If you're a committed Mac or Final Cut Pro user, you can't go wrong with this. If you're more platform agnostic, check out the RT2000 as well – which includes software a couple of generations beyond RTMac.

Neil Bennett

Walkthrough · Real-time video effects in RTMac



RTMac's real-time video effects almost do not need a walkthrough. You apply them and they work, without having to fiddle or wait. However the technique to learn is how to get the best from the real-time effects and transitions so that you keep use of non-real-time effects to a minimum. However, don't push them too far. Sometimes the wait to render can be shorter than the amount of fiddling necessary with a real-time effect.

Amapi 3D 6.0

A powerful modelling product with its own way of doing things, but it's marred by its instability, particularly the Mac version.

Format

Price
$399

Company
Eovia
www.eovia.com

Contact
Computers Unlimited
020 8358 5857

Digit rating
3.5

Features

- 3Space output for interactive Web3D.
- New deformers.
- Better support for tessellation.
- 'Height Field', Image-to-relief support.
- Geometric bump smoothing and exaggeration
- Extended smoothing tools.

Eovia, the company bought by TGS and who also own the old MetaCreations product Cararra, has released version 6 of the unorthodox 3D modelling and rendering program Amapi. Amapi is primarily a 3D modelling and rendering program that takes an unusual approach to interface design that many people love, and others loath. Though geared towards modelling, it can perform some basic animation tasks too. However, in this new version Eovia has added a special Web 3D and dynamics system called 3Space.

3Space is designed as a system for creating interactive 3D with dynamics animations and effects for Web pages. It's designed to reproduce simulations of motion and collisions using forces, masses and other properties such as damping, stiffness, and roughness that you apply to objects.

3Space is based on the ZAP file format. It's very compact because it only sends the instructions used to construct the 3D scene, and not the 3D scene itself. The browser player uses OpenGL to render the scene – so all objects are generated using polygons for display. The current version of the 3Space browser does not support Internet Explorer on the Mac, only Netscape 4.7 or later, which is a severe limitation.

Modelling in Amapi – its primary focus – has seen some decent upgrading too. The smoothing tools have been refined, and the smoothing tool interface is a bit easier to understand. Combined with the excellent polygon tools, it makes for very competent subdivision surfaces modelling. The tessellation tool, which is different from the smoothing tool that rounds off a model's edges, has been improved and now offers different subdivision types including a slice tool for cutting up objects.

Amapi 6 also adds more primitives and a height field object that creates a relief from a grayscale image. New deformers add to Amapi's decent tool set and you can choose to wrap an object around a sphere or cylinder, or use a bitmap image.

Introduced in an earlier version, Amapi 6 has dynamic geometry, otherwise known as construction history. The new version offers a wider gamut of operations that can be contained within an object's dynamic geometry. The Extrude tool can work on multiple selections on an object or even the entire object, so, for example, you could extrude all the faces of a geodesic sphere to create a golf ball. A new Bump/ Unbump feature lets you exaggerate or smooth contoured surfaces, which is a great accompaniment to the new Height Field tools.

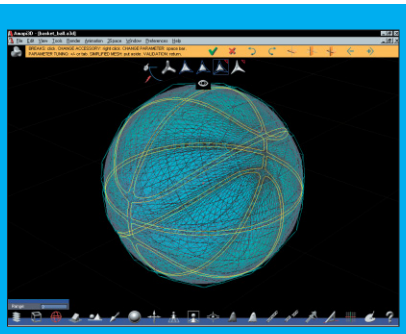
Amapi's materials editing system used to leave a lot to be desired. Thankfully, there's a new interface to the system that works a lot better and makes more sense, even though technologically not much has changed.

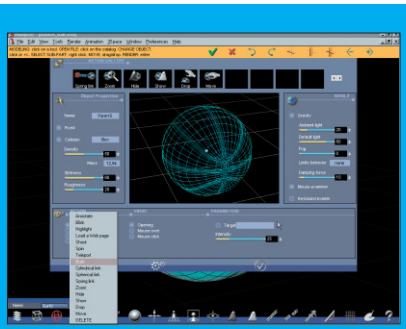
The previous version of Amapi tended to be unstable on both platforms and unfortunately so does this latest version, which crashed far too often. The Mac version was terribly unstable and had the annoying quirk of refusing to open your saved files. The only way to retrieve them was to Import them.

Amapi 6 is a useful and unique 3D program when it doesn't fall over. Once you get used to the quirky way Amapi works, it can be a very fluid and intuitive modelling program that is capable of excellent results.

Mike Williams

Walkthrough · Creating a 3Space event





The 3Space editor is where it all happens. You can apply preset events to objects or create you own, apply physical properties to objects and set rollovers. The basketball is given the Burn preset. To see the effect of a 3Space you must preview it in a Browser. Clicking the preview button in Amapi opens your Web browser and loads the 3Space file.

ArtixScan 4500t

ArtixScan 4500t is a film scanner for all sizes up to 4-x-5 inches, with a maximum resolution of 2,500dpi. That's enough to blow a 4-x-5-inch film up to 846-x-1,058mm at a magazine quality 300dpi (giving a mammoth file size of 285MB).

It's big compared with a 35mm scanner: about the same size as an A4 reflection scanner – the fan's fairly noisy too. This is a SCSI device, supplied with a PCI card for PCs and Macs that need one. Apart from minor external differences, the hardware is exactly the same as the Polaroid SprintScan 45 Ultra (reviewed in *Digit* 29). Likewise, the Polaroid SprintScan 4000 and Microtek ArtixScan 4000t are sisters under the skin. Polaroid never admits it officially, but Microtek's US Artix factory builds the hardware for both. The software is different though – Polaroid supplies PolaColor Insight Pro, and Microtek provides its own ScanWizard Pro TX.

Software

Microtek also includes a copy of LaserSoft SilverFast Ai 5, a high-quality scanning utility that's an alternative to ScanWizard Pro. This runs as an import plug-in within Photoshop, though you get the option of saving straight to file rather than to the Photoshop window. It's supplied with a 4-x-5 inch Kodak IT8 film calibration target that is used to create an ICC profile for the individual scanner.

SilverFast has a good reputation for better automatic and manual controls than standard scanner software, though in my tests it produced much the same results in full auto-RGB as ScanWizard. The latest SilverFast 5 has an improved CMYK preview that matches the Photoshop preview. The SilverFast manual controls are more comprehensive if you're a real expert, but there's nothing much wrong with ScanWizard. The only tool I missed was an eyedropper to set neutral greys within the image, which SilverFast has. It also provides B&W point eyedroppers, again missing from ScanWizard Pro but less vital as you can use the W&B Point histogram to set these. SilverFast can optionally be set to HDR option to capture the full dynamic range of the scanner, allowing you to correct the results in Photoshop.

ScanWizard Pro often makes you wait five minutes while the lamp warms up if you've not used it for a while, even if the scanner has been on all day. This may save power, but it's irritating. You can cancel the warm-up, but it may not match its profile.

The 4500t's maximum optical resolution of 2,500dpi is fairly modest compared with the 4,000dpi of top Nikon and Microtek/Polaroid 35mm scanners, but it's scanning a much larger area. You don't need ultra-high resolution for medium format films. 2,500dpi is respectable for a 35mm frame – it's enough to enlarge to A4 for print or desktop inkjet quality.

The dynamic range of 3.8 is better than most scanners, so it's good with shadow tones. You get a choice of 8- or 16-bits per channel output.

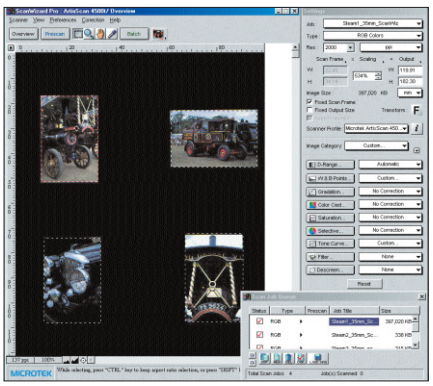
Three film holders are supplied. One can accept up to four mounted 35mm slides; another is a glassless multi-format holder for 4-x-5 inch that also takes inserts for unmounted 2.25-inch square or 6-x-7 cm film or one mounted 35mm slide – the unmounted film is held flat by magnetic strips.

The third holder is a glass mount that can take odd-sized film up to 4-x-5 inches, which is held flat on the glass by vinyl strips, though getting it square can be tricky. Unlike dedicated 35mm scanners there's no holder for strips of unmounted 35mm film, though you can put three short strips of three frames onto the glass holder.

If you use a multiple film holder, you can set up batch scanning in ScanWizard or SilverFast, with each image given individual exposure, scale, crop and resolutions, then scanned in sequence with automatic numbering of file names. Scanning speed depends on the film size, resolution and quality chosen. A 2.25-inch square film to fill 80MB takes 2 mins 24 secs, while a 20MB max-res 35mm scan takes 1 min and 16 seconds.

This 4500t is an excellent scanner if you work with medium format films. If you only ever work with 35mm though it's better to go for a 35mm model at half the price or less.

Simon Eccles



Microtek's ScanWizard Pro TX, set up to batch-scan four 35mm slides.

Versatile, high-quality scanner for medium format films, with the ability to take 35mm slides – a bit on the expensive side though.

Format

Price
£2,950 plus VAT

Company
Microtek
microtek.com

Contact
Microtek
01908 317 797

Digit rating
4.5

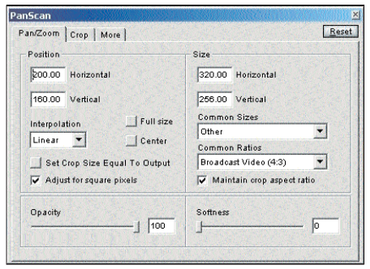
Features

- 2,500dpi optical resolution.
- 3.8 dynamic range.
- Holders for film sizes up to 4-x-5 inches..
- ScanWizard Pro and SilverFast software.
- Batch-scans multiple images.

Digit BEST BUY

Digit / EXCLUSIVE

CineStream



The best solution so far for Web creatives to make interactive video, although the events system needs to be changed.

Format

Price
£339 plus VAT;
£399 with IEEE 1394 card for Windows

Company
Media 100
media100.com

Contact
Media 100
01344 411 011

Digit rating
4.5

CineStream may sound like a new product – but it's not. It's the third release of EditDV, previously by Digital Origin and now under the mantle of streaming pioneer Media 100. EditDV was a worthy but not outstanding editing application that had two main things going for it – it was a lot cheaper than its competitors and the Windows version has the option of shipping with an IEEE 1394 card that made turning a PC into an editing system a doddle.

Coming into the Media 100 fold, it's no surprise that the product has been overhauled and rebranded for streaming-media creation. It's been placed as a much lower-end, software-only companion to the Media 100 i board-&-software solution. It works with DV footage, and can output directly to streaming formats using the bundled Cleaner 5 EZ.

The largest addition to CineStream is, as you'd expect, creative tools for creating streaming media with interactive elements. As well as including Cleaner 5 EZ for the actual process of encoding, CineStream also includes the ability to add events into the stream, called EventStreams by Media 100.

EventStreams are triggers within the video that launch external events on Web sites. These events can either control the video itself, for example moving to a different point in the timeline, or elements of the site itself, for example loading a Web page in a different frame with information on a particular point in the video. The events can be triggered by points in the video or by the user clicking on hotspots.

CineStream's handling of the creation of EventStreams is both excellent and irritating. The level of control is the excellent part. You've got access to all eight of the events currently supported by the three main media players. QuickTime supports them all – while RealPlayer and Windows Media Player support four each. Even the recent Web-chummy release of Premiere can't write all of these.

Another excellent feature is something that Premiere and even Media 100 i can't do, and that's keyframe hotspots. If you had a pop video, for example, where you wanted to allow viewers to click on the members of the band and bring up information on them in another window. It sounds easy... but neither of those products allows you to move the hotspot as the members strut around – unless you want to go into every frame. CineStream can do this automatically using the monitor window.

The irritating thing about EventStreams is that they're built into the effects system, and you apply them like filters. Sometimes this works, as for extended events such as hotspots, but single events like chapter points are much better serviced by being on the scrub bar as in Premiere. One of EditDV's strengths was that it was one of the few editing tools that could be run comfortably on a single display. As each event, including chapter points, needs to be a separate FX track – the timeline can soon stretch down into infinity with even a simple interactive stream. As interactive streaming is CineStream's *raison d'être*, it would have been better handled with its own track – especially as having more than one EventStream happening at any one time is likely to confuse the end user's player.

The rest of the additions included in this upgrade are less impressive. Some of them are much needed, bringing EditDV up-to-date with the majority of its competitors. These include support for multiple timelines in the same project and files sizes over 2GB. Full pan-&-scan facilities are also included, with decent focus controls for zooming in and out on 'interesting' parts of video. Alongside this support for background images larger than PAL has also been added.

Other new features include the ability to spot scene changes during capture, automatically storing them as separate files and bin items, and the addition of a black-&-yellow line for areas that need to be re-rendered. There's also a timecode filter, as well as the ability to link filters to clips and unlink audio from its video.

Most of these features should have been in EditDV 2.0, which was also a little light on new features. Where CineStream does sit very well is as a tool for Web designers to add interactivity after editing.

A designer can sit at his usual station, capture the entirety of a clip using the included IEEE 1394 card (for Windows) or a Mac's built-in FireWire port, and tie-in interactivity to fit with the Web site.

CineStream fills all of the criteria for this niche. It's cheap, it's easy for non-editors to use, it renders quickly and cleanly and it does things no other package can. It just needs to tidy up how events are viewed on the timeline.

Neil Bennett

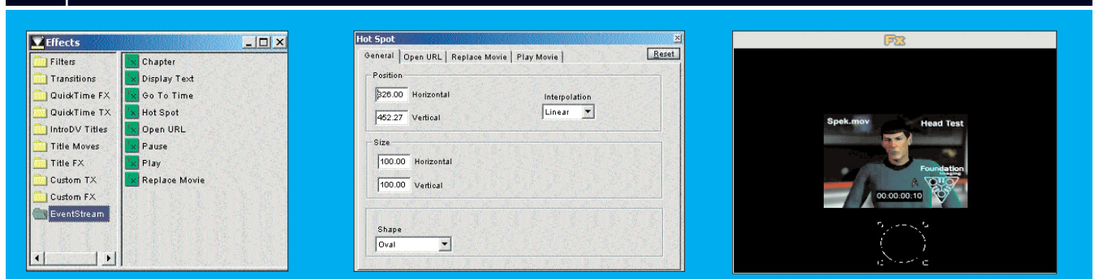
Cinestream is great for creating interactive Web video but traditional editors should steer well clear.

Features

- EventStream triggers for streaming video.
- Pan-&-scan.
- Export to Cleaner and Cleaner EZ (included).
- Support for 2GB and larger files.
- FireWire card option for Windows version.

Digit BEST BUY

Walkthrough · Applying EventStreams in CineStream



EventStreams are applied in CineStream as filters. They are dragged from the effects window onto the timeline and edited like any other filters. Opening them gives you access to dialog boxes to change individual elements. The boxes are also linked to the monitor window, where you can do things like change the position of hot spots (a major coup for the product).

Power Mac G4 733

If you're working with large media files such as digital video you need a fast processor, gobs of storage, a high-speed interface, and appropriate software. Apple's latest PowerMac G4 includes all of those elements plus a DVD-Recordable drive so that you can distribute your movie masterpieces to the masses.

We tested a system with a 733MHz G4, as well as 256MB of RAM, a 60GB hard drive, integrated IEEE 1394 (FireWire) ports, a modem, and an NVidia GeForce2 MX-based graphics board. Apple has announced an NVidia GeForce3-based card and is taking orders for it – but the company doesn't know when they will be available

The system also comes with Apple's SuperDrive, an all-in-one drive that writes to DVD-R discs at 2X speed, writes to CD-R at 8X, and writes to CD-RW at 4X speed. The drive cannot rewrite DVD discs, but it can read DVDs at 6X speed and CDs at 24X speed.

Apple is one of the first system vendors to offer this drive (Compaq's the other). Until now, the drive has cost between £3,000 and £4,000 on its own. The drive's main appeal is that it can burn DVD video files that can be read by any standalone DVD player.

Other aspects of the PowerMac G4 remain unchanged from previous versions. The case design beats that devised by any other manufacturer. You pull a latch to open the side of the case; the motherboard is attached to the side, making all components very easy to reach. The SuperDrive looks difficult to remove, though, and the case has room for only one externally accessible drive bay and one internal drive bay. On the other hand, the system offers four open PCI slots.

The damage is £2,499 for the system alone. You can get the 733MHz processor with a CD-RW drive instead of the SuperDrive, but that would still come to £2,099 without the monitor. The problem is that a dual-processor 533MHz G4 would set you back the same £2,499 – and so for the price of the SuperDrive (which will be irrelevant to most users) you could get a machine that kicks this one's butt in multi-processor applications such as Photoshop. This will be doubly true under OS X, which is multi-threaded throughout.

Alan Stafford

Worth it for the SuperDrive, but many users would get more from a dual-processor 533 – which costs exactly the same.

Format

Price
£2,099 plus VAT

Company
Apple
www.apple.com/uk

Contact
Apple
0800 039 1010

Digit rating
4.0

Scanjet 7450c

With its bundled ADF and transparency adaptor, the Scanjet 7450c is a good choice as an easy-to-use, all-in-one scanning station.

Format

Price
£469 plus VAT

Company
Hewlett-Packard
scanjet.hp.com

Contact
Hewlett-Packard,
0870 241 1485

Digit rating
4.0

The dual-interface (USB and SCSI) HP Scanjet 7450c is a versatile one-stop scanning station: It features an automatic document feeder with a 50-page carrying capacity, as well as an add-on transparency adaptor for scanning film. It also boasts 48-bit colour, 2,400-x-2,400-dpi optical resolution, and lightning-fast performance.

When we tested it using its SCSI interface, scans at 75dpi, 300dpi, and 600dpi were either the fastest or among the fastest scores for those categories. For example, the 7450c scanned a 5-x-7-inch colour photo at 75dpi in a brisk 9.5 seconds, compared with 27 seconds for Microtek's ScanMaker 5700, which we tested using a IEEE 1394 (FireWire) connection. At maximum resolution, the Scanjet proved its throughput power as well, capturing at a rate of 861KBps, second only to the Epson Expression 1680 (1311KBps).

The unit's transparency adaptor has just a 5-x-5-inch working area, in contrast to the 8-x-10-inch scanning areas of the Microtek ScanMaker 8700 and Epson Expression 1680 Professional. If you want a SCSI interface that gives you fastest capture speeds, you must purchase the 7490c, which is the same model but with a SCSI card and cable included.

The Scanjet 7450c's architecture is unique: it features two charge-coupled device image sensors instead of the single sensor found in most scanners. HP says the 600dpi CCD captures larger pixels quickly, while the 2,400dpi CCD is supposed to capture smaller pixels with greater detail. In our tests we rated the 7450c's image quality just a hair short of the colour accuracy and sharp details captured by the top-performing Microtek ScanMaker 8700. Both skin tones and the background in our colour image tests were a slightly more reddish than the original, but these are minor gripes.

The 7450c boasts a legal-size scan bed and a handy assortment of push buttons on the front panel for quick-starting common tasks, as well as for specifying the number and quality of copies and other options.

Richard Jantz

iMac DV SE

If you're only working with the most basic of media then you may want to consider this – but anything else will need a G4.

Format

Price
£1,099 plus VAT

Company
Apple
apple.com/uk

Contact
Apple,
0800 783 4846

Digit rating
3.5

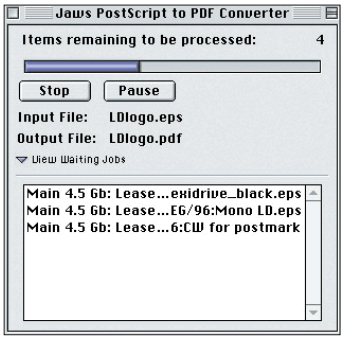
So you don't need a full edit suite – you're only doing Web video goddammit. You also don't want flowers on your computer case – so you can have the iMac Special Edition in Blue Dalmatian or the sombre Graphite. All contain a 600MHz PowerPC G3, 128MB of RAM, 256KB of Level 2 cache, a 40GB hard drive, and an 8X/4X/24X CD-RW drive. And all deliver the Mac's signature out-of-box experience. Upon powering up, you're guided through registering the machine and setting up Internet access. However, if you don't want to register or go online right away, it's rather tough to bail out – the option to postpone these setup chores is offered only when you're almost finished.

Overall this iMac feels like a solid machine – it didn't crash in the applications I use most, and the operating system behaved predictably. But the Mac OS doesn't feel nearly as adept at task-switching as Windows does. I managed to hang the system several times while moving among open windows in the Finder, although I had only three of the aforementioned applications open. Most of the time I waited several seconds for cursor control to return when I changed tasks.

The built-in display is also inadequate for office work; the 15-inch monitor has only 13.8 inches of viewable screen area, which I found too small for working comfortably with more than one open window.

In addition, you can't adjust the angle of the monitor/case, and raising the monitor height would require perching the entire system on a stable, non-yielding platform that wouldn't obstruct the ventilation holes on the case bottom. Apple's emphasis on design is legendary, but I'd like to see the company pay more attention to ergonomics. At £1,099, this model is the top of the iMac line, but it has the feel of a student computer (for families with lots of money). It may be ideal for those Web-types who want a compact system but don't want to compromise on components – although most would probably do better by spending a little more on a Power Mac or a G4 Cube.

Rebecca Freed



PDF Creator 2.0

PDF Creator 2.0 is a lower-cost alternative to Adobe's Distiller, able to turn any file into a platform, browser and printer-independent PDF document through the print menu. It's a descendent of 5D Systems' Windows-only NikNak, and now supports Mac OS from the same installer. Last year 5D's PostScript utilities were bought by UK RIP developer Harlequin, and set up as Jaws Systems.

Why would you need an alternative to Distiller? Money, basically. Acrobat Distiller gives you full control over PDF creation, such as choice of compression types, font handling, colour management and so on. However, Adobe only sells Distiller as part of the full Acrobat package, which costs £180. The main Acrobat application is worth having as it allows you to edit PDFs, add interactivity and alter the security options.

However, if money is tight or you work in a large organization that needs lots of Distillers but only a few Acrobat editors, then PDF Creator can save a bundle. It's available in single, 10 and 25 user licences. PDFs from PDF creator can be read and printed with the free Acrobat Reader – it's on the *Digit* cover disc.

PDF Creator 2.0 can now output PDF 1.3 files, introduced with Adobe Acrobat 4, as well as PDF 1.2. Unfortunately for Jaws, Adobe's new Acrobat 5 adds PDF 1.4, which PDF Creator 2.0 doesn't support.

Not having PDF 1.4 is no real problem at present. It's only really needed for Adobe's PDF ebooks, for 128-bit encryption, or for PDFs that preserve Illustrator 9's transparent layers. Illustrator 9 outputs PDF 1.4 directly, so has no need for an external PDF creator.

Less obviously, PDF Creator files are PostScript 3 compliant. PostScript Type 1 (including base 14), Type 3 logos and TrueType fonts can be embedded. Password security levels (editing, printing and so on) can be set with RSA RC4 security. Another addition to PDF Creator 2.0 is a macro for outputting directly from Word 97 or 2000 for Windows (not Mac). This appears in the File menu and gives you an extended set of Word-specific options such as creating links to tables of contents or footnotes, creating article threads from linked text boxes, or e-mailing a PDF after creation. Acrobat 5 also has Office-specific output, but without such comprehensive options.

PDF Creator 2.0 is installed as a new Print menu option for Windows, or as a LaserWriter item for Mac OS Chooser, which appears in Mac print menus. Unlike Distiller for Windows (but like Distiller for Mac), you can't get into the PDF Creator settings from the print menu, so you have to go through the standalone Jaws to PDF application, which is equivalent to the standalone Distiller. This lets you select from the three pre-set configurations (Press Ready, Print Quality or Web), or to modify these or set up new configurations and save them. The configuration options are much the same as you get with Distiller, covering file type, compression/subsampling, font embedding, security and reporting. The print menu uses the currently selected configuration.

You can also drag groups of PostScript or EPS files onto the Jaws ToPDF icon on the desktop, and it will automatically batch-convert them.

Jaws PDF Creator 2.0 is a reliable and cost-saving alternative to Acrobat, providing you don't need PDF 1.4.

Simon Eccles

A full-function PDF creation program that's a credible alternative to Adobe's own Distiller, at a much lower price.

Format

Price
£80 (single-user);
£720 (10-users);
£1,700 (25-users)

Company
Jaws Systems
jawssystem.com

Contact
Jaws Systems
01223 873800

Digit rating
4.5

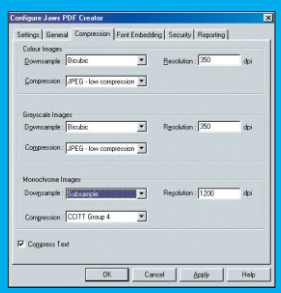
Features

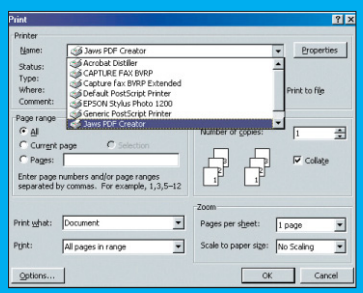
- Distills any file to PDF 1.3 or 1.2.
- Lower cost than Adobe Distiller.
- Special features for Word 97/2000.

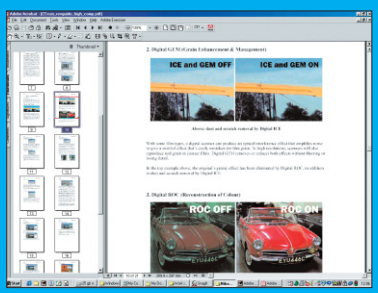
Digit BEST BUY

A demo of PDF Creator 2.0 is available on this month's cover disc.

Walkthrough · Creating PDFs with Jaws PDF Creator







PDF Configurations can be created, modified and saved in the Jaws To PDF application. To create a PDF from any program, select Jaws ToPDF in the Print Menu. After processing, the file automatically opens in Acrobat Reader. Thumbnail creation is optional.

Nikon CoolScan

Digital ICE Cubed technology lets the CoolScan IV beat the old top-of-the-range 2000 and CoolScan 4000 to sit at the pinnacle of the market.

Format

Price
£649.99 CoolScan IV ED; £1,299.99 Super CoolScan 400 ED

Company
Nikon
www.nikon.co.uk

Contact
Nikon
0800 230 220

Digit rating
5.0

Features

- 2,900 dpi (CS IV), 4,000 dpi (CS 4000)
- 3.6/4.2 dynamic range
- 8/12 bit output (8/14 on CS 4000)
- Digital ICE Cubed automatic image enhancement
- Accepts 35 mm slides, film strips, APS optional

BEST Digit BUY

The new CoolScan IV ED (also called LS-40) and Super CoolScan 4000 ED (LS-4000) replace the CoolScan III/LS-30 and CoolScan 2000/LS-2000 respectively. List prices are £30 and £100 higher respectively, but resolution, quality, optics, speed and software are much improved. The Digital ICE hardware dust removal system has been extended into the new Digital ICE Cubed suite, with routines for noise reduction and restoring faded film.

CoolScan IV and the CoolScan 4000 are similar in looks. The real difference is inside: CoolScan IV has a maximum resolution of 2,900dpi (LS-2000 had 2,700), a dynamic range of 3.6 and the choice of 8- or 12-bits per channel output. The CoolScan 4000 has a maximum res of 4,000dpi, a very high dynamic range of 4.2 and a choice of 8 or 14 bits per channel. Output can be greyscale or ICC-profiled RGB or CMYK colour.

The black dust cover on the front panel slides down to reveal the interchangeable film adaptors. The manual adaptor takes either a single 35mm mounted slide or a six-frame film strip holder. This can be replaced with the powered 35mm six-frame film loader, which allows batch scanning. An APS (IX-240) film cassette loader is optional. Extra-cost options, for LS-4000 only, are a rear loader for uncut 35mm films with up to 40 frames and a feeder for 50 slides.

SCSI has been dropped in favour of a USB interface for CoolScan IV and IEEE 1394 (FireWire) for CoolScan 4000. The 4000 is bundled with an Adaptec FireWire PCI card for FireWire-free PCs and beige G3 Macs.

The new Nikon Scan 3 software runs as a standalone application but can also be called from Photoshop's file import menu (Photoshop 5.0 LE and FotoStation album software are bundled).

The heavily revised user interface is a vast improvement on the old v.2.5. The main preview window can now be scaled to fit your screen. New tabbed 'natural' and 'processed' previews let you compare the raw scan with the effects of automatic and manual editing. A big new floating Tool Palette with tear-off re-positionable palettes is a welcome improvement on the old drawer metaphor. Tool settings can be saved individually or collectively and applied to other images.

Tools include a new Lightness/Chroma/Hue editor in addition to the RGB and CMYK Curves/Histogram editor. The Hue editor is fiddly but effective for adjusting selective colours. The preferences menu is also re-organized with understandable colour profile selection and lots of previewing options.

Minolta and Canon license Digital ICE dust removal for some models, but only the new Nikons have the new ICE Cubed suite, which adds Digital GEM and ROC.

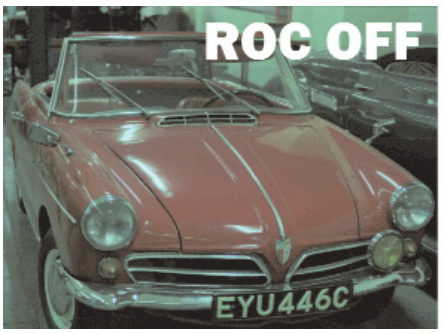
ICE (Image Correction & Enhancement) compares the film's transmission of infra-red light from the scanner's LEDs with the visible RGB image. Any difference is due to surface defects that are then subtracted in software. This is the best dust-buster I've ever used. GEM (Grain Equalization & Management) is very effective at reducing the amplified noise that looks like film grain on many 35mm CCD scanners.

ROC (Reconstruction of Colour) automatically enhances old films that have faded or developed colour casts beyond the range of autoexposure or manual corrections. I got fantastic results from some grotty 25-plus year old pos and neg colour films as well as more recent under and over-exposed images. The only disappointment is that Digital ICE won't work at all with monochrome films.

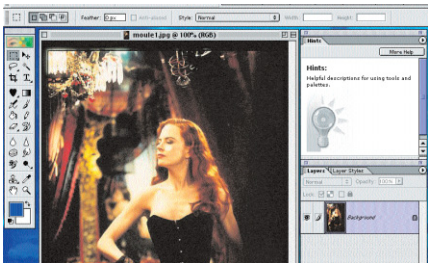
Output file formats include TIFF, JPEG, BMP and the new Nikon native NEF, also output by Nikon's D1 digital camera. NEF preserves raw image information so images can be re-opened in Nikon Scan 3 and altered without losing quality.

The CoolScan IV and CoolScan 4000 put Nikon back at the top of the 35mm scanner tree and Digital ICE Cubed technology turns both CoolScans into world-beaters.

Simon Eccles



Above: Nikon Scan 3 software has extended functionality and new floating tool palette.
Right: The new Digital ROC feature makes a great job of restoring old films – this one dates back to 1977.



Photoshop Elements

Designers and artists will still need the full product, but there are plenty of useful features here for video and 3D creatives.

Format

Price
£79 plus VAT

Company
Adobe
www.adobe.co.uk

Contact
Adobe
020 8606 4001

Digit rating
4.0

Do you really need Photoshop? If you're a graphic artist or designer, the answer is obviously yes, but video and 3D artists don't need many of its high-end features such as colour management. As an alternative, Photoshop Elements offers a robust mix of features for non-print creatives.

Replacing Photoshop LE, Elements is designed to take on JASC's powerful, low-end tool Paint Shop Pro (PSP). This means that it contains many features aimed at consumers, but there's also enough to create great graphics. Elements stands up pretty well against PSP – especially for Mac users who haven't had access to a tool of this calibre at this price before.

It has all of Photoshop's tools including the History palette for undoing and redoing multiple actions. Vector-based shapes and text – both rare in low-priced graphics applications – are also included. Type text onto the canvas or add shadows and bevels, and the text remains sharp at any resolution. Elements' Fill Flash tool does an easy and competent job of brightening a photo. There's also a Web optimization tool that works well enough for the occasional image – though Web pros will still need FireWorks or ImageReady.

In this short review of Elements, it's easier to say what's missing than list all that's included. It can't work with CMYK files or colour profiles – although it can open CMYK files and convert them to RGB. It can also handle EPS files.

Elements also lacks Photoshop features such as curves, colour channels, and masking. However Elements can create adjustment layers, to tweak an image without affecting the underlying base.

Elements does boasts some tools not found in Photoshop, but they're split between graphical equivalents of Mr Paperclip and low-level tools that you'll never use. Recipes, text-based instructional procedures housed in a palette, are aimed at your granny, while the red-eye reduction brush works is no different to that found in a tool like MGI PhotoSuite.

Even so, Elements is an ideal tool for creatives without graphic art needs.

Alan Stafford

Easy CD Creator 5

It's not an essential upgrade unless you're really into your music or VideoCDs – but overall the package is still the best on the market.

Format

Price
£49.99 plus VAT

Company
Roxio
www.roxio.com

Contact
Roxio
001 866 280 7694

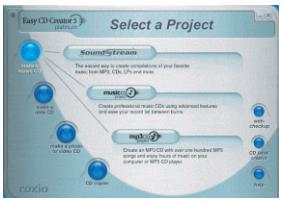
Digit rating
3.5

Roxio's new Easy CD Creator 5 Platinum software suite is a fine first Windows product from this Adaptec spin-off. However, the update is not as fully featured for Windows media professionals as it is for home users – or as the recent Toast 5 release was Mac professionals.

Improvements over version 4 include a slicker, more intuitive interface; the ability to encode MP3s (with playlist creation); and support for direct re-writing to DVD-RAM drives. However, there's none of Toast's support for video DVD creation, even though you've got more chance of getting your hands on a SuperDrive through a Compaq machine than an Apple one.

At the heart of version 5 are the Project Selector, which helps you move between programs in the suite, and the new SoundStream app that makes creating audio CDs easy and intuitive. SoundStream incorporates version 4's Spin Doctor audio restoration program – but also adds a realizer and a decent MP3 encoder. You get just about everything you need to process and record audio material.

Other tools include a disc-recovery and disc-repair utility; a simple video editor; MPEG-1 video encoding; and DirectCD packet writing support for Hitachi and Toshiba DVD-RAM drives.



A few annoyances persist. The user interface isn't the same for all programs. Overwriting with DirectCD can take three or more times longer than the original write. You cannot test a hard drive for transfer speed – critical to proper writing of a CD – if it doesn't hold the right number of files. There's no batch function for testing multiple hard drives or partitions. On the up side, although the CD label and case creator is just as awful as it was, it seems less buggy and doesn't seem to crash and overwrite files without asking.

Easy CD Creator 5 Platinum is still the most comprehensive CD authoring package available. But it's a must-have upgrade only if you're unhappy with version 4, or another package.

Jon L Jacobi & Daniel Underwood

TO BE WORTHY OF THE ATTENTION OF TODAY'S SEASONED GAMERS, 3D GRAPHICS NEED THE WOW FACTOR. AND SO DO THE TOOLS THAT CREATE THEM. DIGIT ROUNDS UP SIX OF THE BEST 3D MODELLING AND ANIMATION TOOLS.

PRO-GAMERS

BY SIMON DANAHER

First there was the graphics-impaired *Adventure* by Crowther and Woods, then there was Atari's masterpiece of minimalist gaming, *Pong*. At the time, of course, it was mesmerizing, and soon we had *Asteroids* and *Space Invaders*, which were even more beguiling. The games industry and the games it produced have certainly come a long way since then, and so have the tools used to create them. Intense graphics and realistic motion coupled with impressive effects and audio are the going commodity in today's games.

For years the games industry has been dominated by 3D Studio Max, and though there are still many staunch Max supporters, there has been a trend away from it and towards the seemingly unstoppable force of Maya.

Although almost any polygon-based 3D program can be used for modelling for games, some are better suited than others. As computers and consoles become more powerful, the restrictions on polygon counts will be less severe. Games will become more interactive and yet look as realistic as a movie, so the ideal games system for the coming future will combine the efficient heritage of games production with the no-compromise toolset of film effects and character animation. Graphics cards such as the new GeForce 3 – which can render high-resolution characters and produce near broadcast-quality effects and imagery in real-time – demonstrate that things are changing fast.

In this roundup we'll take a look at the top 3D modelling and animation programs and see how they rate for games production as well as for 3D animation in general. →

ILLUSTRATION BY ROGER HARRIS/FOLIO

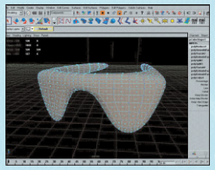
MAYA 3.0

Price: Complete £6,360 plus VAT
Unlimited £13,560 plus VAT
Builder £1,935 plus VAT

Platform:

Company: Alias|Wavefront, www.aliaswavefront.com

Contact: Techex, *01628 777 800*



Maya has on-screen, live feedback of polygon counts for the objects in your scene, making it easy to keep track of polygon numbers.

There are three versions of Maya: Complete, Unlimited, and Builder. Complete is the base version featuring advanced character animation tools, NURBS and polygon modelling and sophisticated rendering. Unlimited adds Cloth, Fur and Subdivision Surfaces to this package. Builder, of interest here, is a stripped-down version geared towards game development. While it lacks rendering and NURBS modelling, there's a single two-bone IK solver that's ideal for game characters (the source code of which is included and can be integrated into a games engine). As you'd expect, Builder is also much cheaper than Maya Complete and, at just under £2,000, represents good value for money. It has the full complement of polygon modelling and texturing tools found in Complete, which includes UV editing and 3D painting. Multiple textures and lighting (including shadows) can be 'burned' into an object's UV texture map allowing for rich effects and environments to be created with no extra overhead.

Where Maya 3.0 scores highly for games is with MEL scripting (Maya Embedded Language). MEL lets programmers create their own UI elements to help manage the creation of multiple levels and provide access to the full Maya API (Application Program Interface).

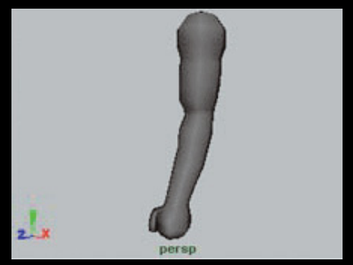
Artistically Maya scores highly too. The interface is fully customizable, and it's generally easy to use. Maya Complete features more sophisticated IK solvers – including an IK Spline handle that's ideal for animating multi-jointed or tentacle-like creatures. Attaching skin to a skeleton is easy, and editing joint weights can be done visually by painting on the object's surface.

The painting interface, called Artisan, extends much further than this. You can paint-select objects and components, sculpt surfaces like clay (also available in Builder), and use Paint FX.

The polygon tools are good, and thanks to Maya's Construction History, you can reach back to any previous step to make changes. This offers plenty of opportunity for creating versions of a single model to create different characters for a game.

Like XSI, Maya features non-linear animation – extremely useful for game development, since you can build up a library of animation clips that can be reused and accessed by all animators in a workgroup. Maya is an exceptional package that offers several levels of sophistication and price points for game producers. Builder can be used to create levels and environments, build characters and for simple animation, while Complete and even Unlimited can be used for more complex work in the game – and of course for an FMV. It may not be cheap, but for most of us Maya is all the animation software we'll ever need.

MAYA 3.0: using the two-bone IK solver to set up characters in a real-time 3D game

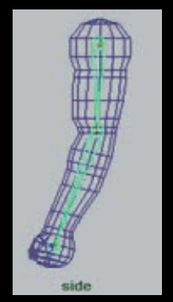


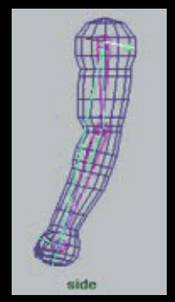
STEP 1: Having created a polygon arm, select Window>Settings/Preferences>Plugin Manager. If you're on NT, load ik2Bsolver.mll, if you're on IRIX, load ik2Bsolver.so. In the command line type ik2Bsolver;. This creates the ik2Bsolver custom node, and now you can create a skeleton with the two-bone solver.

STEP 2: Select Skeleton>Joint Tool. In the Side view, click inside the shoulder area to place the root of the skeleton. Then click in the elbow area and again at the hand to make two bones. Press Enter to complete the skeleton.

Then select Skeleton>IK Handle Tool>Options. Change the Current Solver to ik2Bsolver. Press Close and click on the top of the joint in the shoulder area and then on the end of the joint in the hand area. This tells the solver to solve from the root joint to the last joint in this two-bone chain. After the solver has been added, the skeleton turns purple and a green line runs through the skeleton with a green line directly from the root joint to the end joint. A move manipulator becomes available at the end of the joint chain – indicating that the IK handle is selected.

Select the manipulator and move it around. The chain reacts to wherever the manipulator is placed. You can undo this by pressing Z on the keyboard.

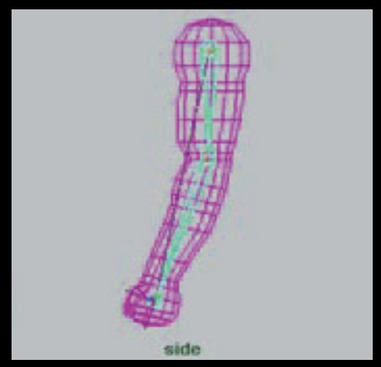




STEP 3: When you move the IK handle, the arm stays in place – until you bind the arm to the skeleton chain. This process is called skinning and lets the arm deform with the movement of the skeleton. Smooth skin will assign influences to the vertices of the arm based on their proximity to the joints and bones of the chain. Select the arm geometry and Shift-select the upper or lower bone of the arm's skeleton. This tells the Smooth Bind operation that you want to assign this geometry to this skeleton. Then select Skin>Bind Skin>Smooth Bind. The display shows the geometry in purple and the IK handle selected. Move the IK handle around and you will see that the geometry moves with the skeleton. Undo your movement.

The way each vertex of the geometry relates to each bone in the chain is referred to as skin weight. To check the weighting information on a vertex in the elbow area, select Window>General Editors>Component Editor. This has many different tabs that show information for the selected components. Click on the Skin Clusters tab and press F9 to go into Vertex component selection mode. In the Side view, select a vertex on the inside of the elbow. The Component Editor updates to show the information for the selected vertex.

Joint1 for example may have a weighting of 0.500 as does joint2. Joint3 may have no weighting. This means that joint1 has a 50 per cent influence on this vertex, as does joint2. All the influences must add up to 100 per cent or 1.0 in the Component Editor. When you change a value for one joint, the other joints update respectively to meet a 1.0 total. You can change these influences by typing a different value, and you can hold a particular value by changing the off value to on just below each joint.



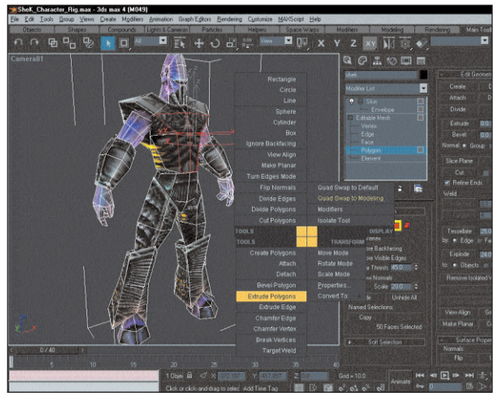
3D STUDIO MAX

Price: £2,695 plus VAT
£595 upgrade from version 2 and 3

Platform:

Company: Discreet, www.discreet.com

Contact: Cadline, *01784 461 991*



Max 4 sports a new customizable interface and a new contextual pop up menu system that places the tools you need at your fingertips.

3D Studio Max 4 is a substantial new upgrade to the famed 3D production tool. Max has always been the games designer's favourite 3D application, though as time goes by Discreet doubtless feels its grip on the games market gradually becoming more tenuous.

Max has always relied on complex procedural tools and a rather convoluted work flow. Modelling operations, effects, and utilities are layered in the Modifier Stack which, while offering a sort of construction history, makes working with Max a very disjointed affair. Version 4 has gone some way to improving things thanks to a new pop-up menu system, called the 'Quad menu' – similar to the Hot Box and marking menu system in Maya. There's also a new polygon-modelling system, which makes you wonder how Max was so successful in games before. The new Polygon Object gives you access to a true polygon-modelling toolset. You can access the various modelling functions from the Quad menu, though the toolset is not as comprehensive as some of the other packages we have on test here.

The new IK system is impressive and much improved over previous versions. Bones can be displayed with fins which help define the volume of the object. This is useful, and as they act as real objects they can be rendered for fast previews. Any object can become a bone, so you can use Max's modelling tools to build a custom skeleton structure.

The limb solver is a two-bone IK solver specifically designed for games production, since it can be modified for use in a games engine. FK and IK can be mixed and blended on the same IK chain using keyframes. Skinning – the binding of a character model to a jointed skeleton – has also been improved. The Morph Angle Deformer lets you create bulges and skin deformations based on bone angles. You have to make a duplicate of the geometry, though, so it's not as elegant as is could be.

The best workflow enhancements are the Custom Attributes and Parameter Wiring features. Custom Attributes are custom UI widgets, sliders and the like that control animated parameters and are displayed right in the view ports. Rather than having to hunt for the parameter in the modifier stack, all the animated parameters can be in one place. Wiring lets you link animated parameters together – and combined with expressions, add a lot more power to Max's animation toolset.

Max 4 is undoubtedly a great system for games development. However, despite the advances and the large user base, Max remains a powerful yet inelegantly designed system.

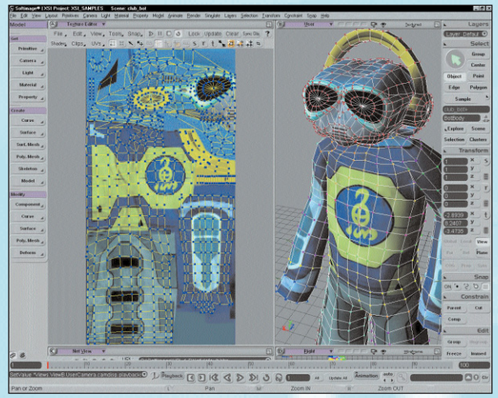
SOFTIMAGE|XSI

Price: Essentials £5,500 plus VAT
Advanced £8,200 plus VAT

Platform:

Company: Softimage, www.softimage.com

Contact: Tyrell, *020 7343 5500*



Extensive UV-editing tools let you minimize texture use and maximize efficiency.

XSI is Softimage's newest 3D animation application designed to meet the needs of demanding 3D artists by providing them with a powerful system designed around the Mental Ray renderer. Its key design feature is the non-linear animation system (NLA) that offers animators a new way to work with animation. With NLA systems, you can mix and blend animation clips to create new animations, modify existing clips non destructively and transpose animations to easily create flocks of game characters.

Until this latest version, XSI lacked polygon modelling – so previously it was bundled with SoftImage 3D 3.9 to bridge the gap. Now, however, XSI has an excellent polygon editing system that features integrated Subdivision Surfaces and powerful UV texturing.

For games production, Softimage|XSI would be less of an easy choice than Max or Maya – even though its toolset is more than capable of supporting games development. Also, as with Alias|Wavefront Maya, everything is built in; no extra plug-ins are required.

Where XSI excels is in high-resolution character creation and rendering. This is thanks to sophisticated NURBS modelling and surface continuity management (which prevents seams from showing,) coupled with thoroughbred rendering. The renderer included is Mental Ray 2.1 from Mental Images, and it features exceptional quality output that includes radiosity and caustics.

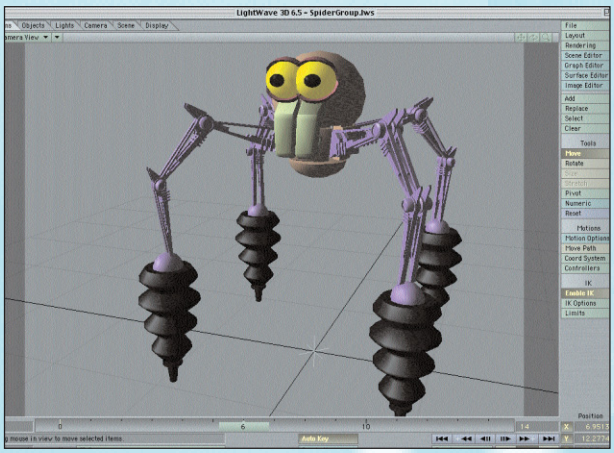
This shader-based system has been made simple to operate thanks to the Render tree – a visual-shading network for connecting shaders and building custom looks. As you work on a scene, you get instant feedback of any changes at the final render quality thanks to the interactive rendering.

XSI has excellent relational modelling (construction history) and good polygon reduction tools. There's image baking and decent UV editing and – new to version 1.5 – geometry sculpting and deforming using a brush-based interface. Add to this sublime animation control and NLA, and XSI appears a very good package for games indeed.

There are two versions available – Essentials and Advanced. The latter adds Cloth simulation, integrated particles, and Softbody dynamics to the base package. Essentials costs more than Maya Builder or Max, but as it includes everything you need built-in – including Mental Ray (an expensive option for Max users) – all told, it's a very good value system for all applications.

LIGHTWAVE 6.5

Price: £1,595 plus VAT
Platform:
Company: NewTek, www.newtek.com
Contact: OneVideo.net, *07000 663 843*



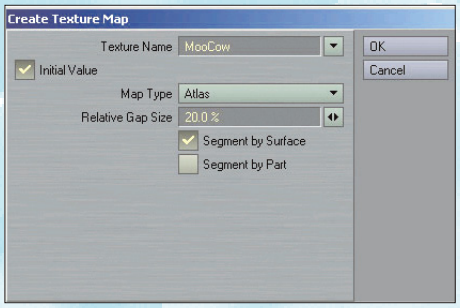
LightWave is a robust and flexible 3D system with terrific modelling capabilities. The tool set is vast and modelling feels direct and responsive.

LightWave is a solid 3D program with a considerable history of achievements. Its credits span film and broadcast – and, of course, game production. LightWave has an excellent modeller that's mainly polygon-based, so it's ideal for creating models for games. The polygon toolset is vast and extremely versatile, with excellent control over the finest details of poly modelling. There are other available options, of course, such as procedural primitives (generated as polygon meshes), metaballs and MetaNURBS, which are LightWave's version of subdivision surfaces. MetaNURBS can convert models that contain three- and four-point polygons and subdivide them to form smooth surfaces. Unlike XSI, you're limited to just these three- or four-points – any more or less and MetaNURBS will fail to convert. They are, however, very flexible and feature weight painting that lets you vary the influence of points in the control cage over the subdivided surface. LightWave 6.5 has good UV editing, and there are some nice extras like per-polygon UV mapping too.

Animation is good, although there's no non-linear animation as yet. Softbody dynamics are courtesy of the Motion Designer 2000 plug-in, and there's good expressions and a function-curve editor. The IK system is also good and skeleton setup has been made easier thanks to Skelegons, special polygons assembled in Modeller that can be converted to bones in Layout.

LightWave has an excellent raytrace renderer capable of stunning output and very sophisticated effects. Hypervoxels is LightWave's technology for creating realistic volumetric effects, and there's also radiosity and caustics should you need them.

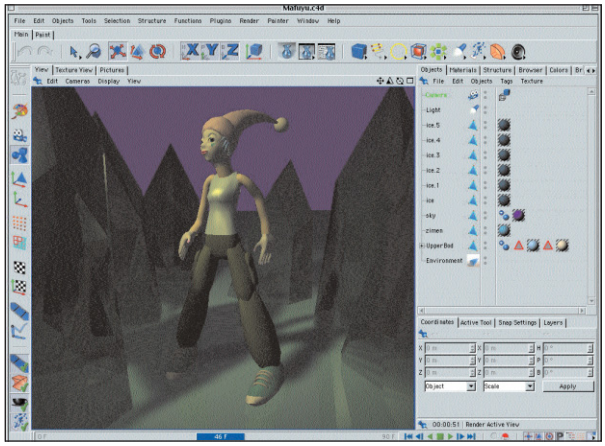
For all aspects of games production – including in-game video – LightWave is a worthy option. It offers a more hands-on approach and in many situations, such as for modelling, this is no bad thing.



LightWave's Atlas UV Mapping feature allows for advanced UV mapping in one easy step.

CINEMA 4D XL 6 & BODY PAINT

Price: XL £1,395 inc VAT; BodyPaint £479 inc VAT
Platform:
Company: Maxon, www.cinema4d.com
Contact: HiSoft, *01525 718 181*



Cinema 4D XL 6.3 is a great all rounder. It has fine modelling and deformation tools, as well as a nonlinear animation (motion sequencing) system.

Cinema 4D XL 6.3 is a superb all-round 3D system from Maxon. In recent times, it's improved by leaps and bounds to become one of the top 3D packages in the mid- to high-price bracket. XL6 features impressive polygon and quasi-NURBS modelling with a clever twist on relational modelling and history. While it's not an obvious choice for games development, it's a perfectly feasible one.

XL features a fast IK system and good keyframing and function curve editing, though it's the only package here that doesn't have independent motion channels, which can be limiting. There's also time re-mapping – where a path animation, or an object's acceleration or velocity, can be remapped using a single function curve. This is very handy for re-timing animations, and works on all types of animation tracks – not just position.

Animation is further enriched by motion sequencing, which is very similar in effect to the non-linear animation in the other packages here. XL's motion sequencing lets you combine and overlay multiple tracks of animation on a single character, though only for translation, rotation and scaling, which is fine for most character animation.

At present, there's no polygon reduction – though hopefully this will change in upcoming versions. Subdivision surfaces are on offer in the form of HyperNURBS. Any polygon object can be placed in a HyperNURBS modifier to become smoothed, and generally it works well.

XL can be purchased with BodyPaint, an additional module that adds 3D painting and UV editing. BodyPaint is totally integrated into the package and lets you paint textures on objects in real-time, and in final render quality if necessary.

UV texturing is essential for games where most of the detail is implied using precisely positioned textures. By reusing the same image map in different ways, game designers can economize still further, and having a rich UV-editing tool set is essential.

XL has a very appealing interface that's totally customizable. This means that you can save different layouts depending on the task at hand. You could have separate interfaces for animation, modelling and texturing, and easily split the interface across two or more monitors.

Rendering is excellent with very fast, hybrid raytracing. One interesting feature of the renderer is that depth map shadows take transparency into account – so you can have soft shadows with transparent objects and still have fast rendering. Though it's not an obvious choice for games development, XL is still a great general 3D package at a decent price.

ELECTRIC IMAGE UNIVERSE

Price: £1,388 plus VAT
upgrade form 2.9 £205

Platform:

Company: Electric Image, www.electricimage.com

Contact: Gomark, *020 7731 7930*

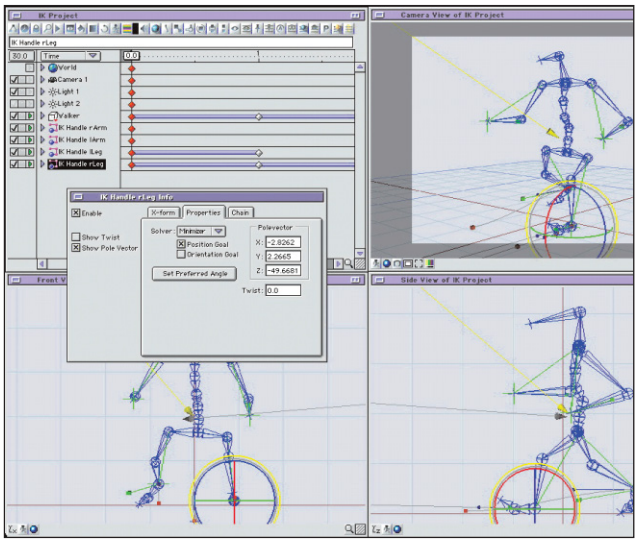
High on most Electric Image user's wishlists for new features in Universe were better character animation tools. And those wishes have been granted with the release of Universe.

Universe's new IK system features a more intuitive operation. No more IK tool, instead Universe's joints and bones can be controlled with an Effector much as in Maya. In fact, the new interface and IK system is reminiscent of Maya's in many ways. There are three IK solvers: Minimizer, a quick-&-dirty solver; Pseudo, slower but more accurate; and Two Bone, which is ideal for simpler game characters.

Where Electric Image Universe scores highly is with rendering. For creating FMVs for games, Universe is a great choice thanks to incredible speed and excellent image quality. New in Universe is the raytracing Camera (Universe's rendering program), which supports hard and area shadows, reflections and refraction, though the faked Phong render reflections are still excellent and benefit from rendering very quickly. Still available are Camera Maps, but they have been improved to display in the textured previews which are now OpenGL accelerated. Camera maps can be used to create amazing 3D scenes using 2D images projected onto simple geometry.

Animation control in Universe is also good. There's a well-designed function curve editor, and almost every parameter can be animated, including and shader fields. The timeline is well designed, though the number of animatable parameters each object has can sometimes make navigating the animation channels a bit of a headache. As far as modelling is concerned, it doesn't fare quite so well – not for in-game content anyway. While it's OK for for simple models and scenery, it's not suited for more complex objects like characters. This is because the Universe Modeler, though improved over previous versions, is based on ACIS, a powerful, but polygonless geometry kernel.

NURBS surfaces and solids are supported but you can't model with polygons, the ideal geometry type for game design. Modeler does support UberNURBS – a type of Subdivision Surface modelling that can be used to great effect for creating characters – and organic objects.

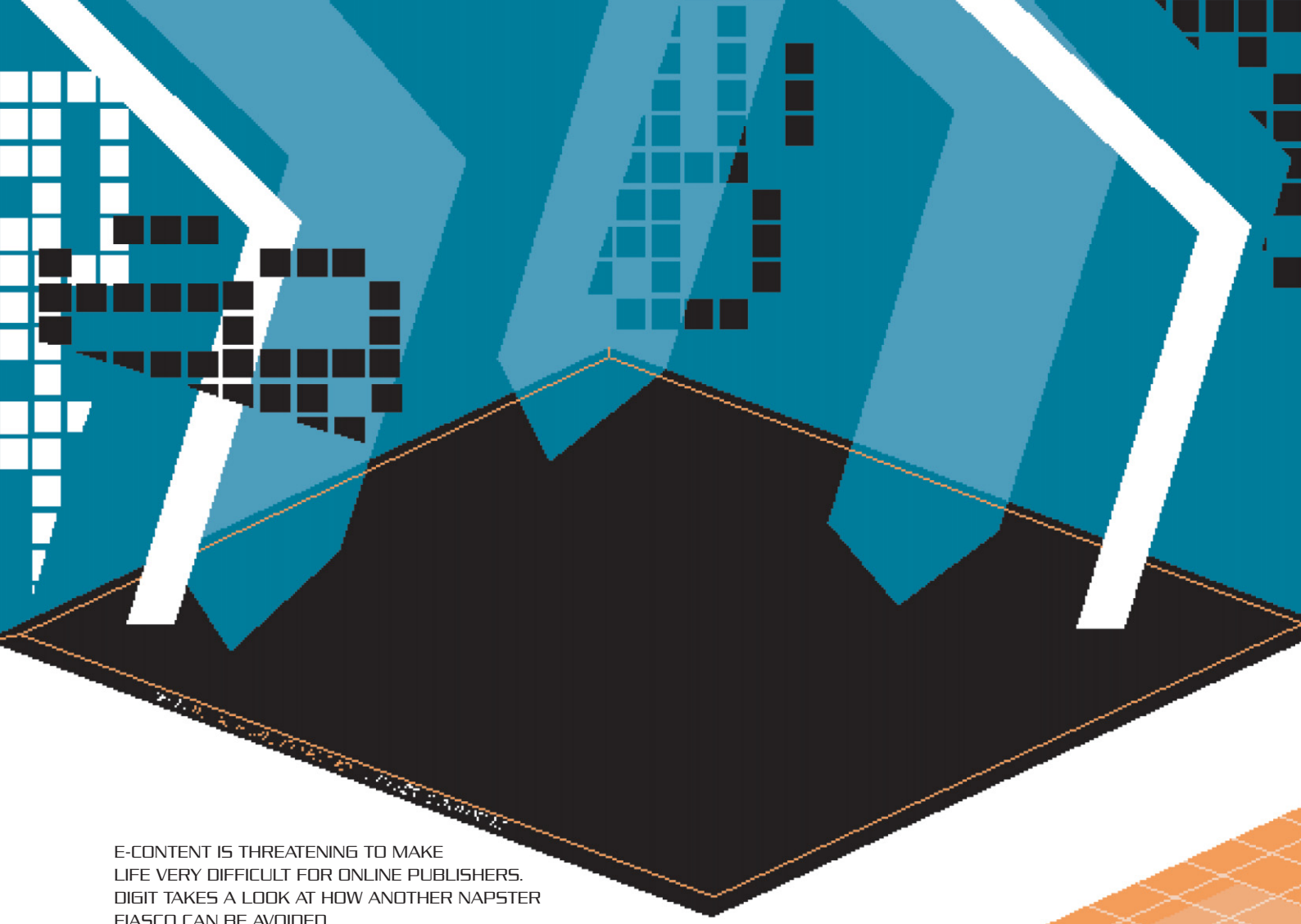


The new IK system makes it much easier to animate characters in Electric Image Universe. A Two Bone solver is provided for speedy IK in a simple game character though there are also more advanced solvers with Twist and Pole vector controls.

In order to render the models in Universe Animator, they must be tessellated – converted into polygons. So while you can't actually build with them, you can output polygon objects, although the degree of tessellation control required for game design is lacking. Universe Animator does support a huge number of geometry formats for importing models – so you could use it in combination with another modeller should you wish. There's also BioVision motion data import and export, facilitating the use of motion capture data. Though not an all rounder for game production Universe has some fantastic tricks up it's sleeve. The new IK tools provide a much needed boost to the program, but it's the flexibility in rendering and animation that really makes Universe shine.

Manufacturer	Alias|Wavefront	Discreet	Electric Image	Maxon	NewTek	Softimage
Software	Maya 3.0 Complete	3D Studio Max 4	EI: Universe	Cinema 4D XL 6	LightWave 3D 6.5	Softimage|XSI 1.5
Platform	Windows	Windows	Mac, Windows	Mac, Windows	Mac, Windows	Windows
Price	£6,360 plus VAT	£2,695 plus VAT	£1,388 plus VAT	£1,395 inc VAT	£1,595 plus VAT	£5,500 plus VAT
Modelling	●	●	●	●	●	●
Animation	●	●	●	●	●	●
Rendering	●	●	●	●	●	●
NURBS	●	●	●	●	❍	●
Polygons	●	●	●	●	●	●
Subdivision surfaces	●	●	●	●	❍	●
Character animation	●	●	●	●	●	●
Network rendering	●	❍	●	● (Cinema 4D Net)	❍	●
Tie to compositing applications	● (Maya Fusion)	● (Combustion)	❍	❍	● (Aura)	● (Avid|DS)

Note: all specifications are from the manufacturers spec sheets, and should be used as guidelines only. ● Yes ❍ No

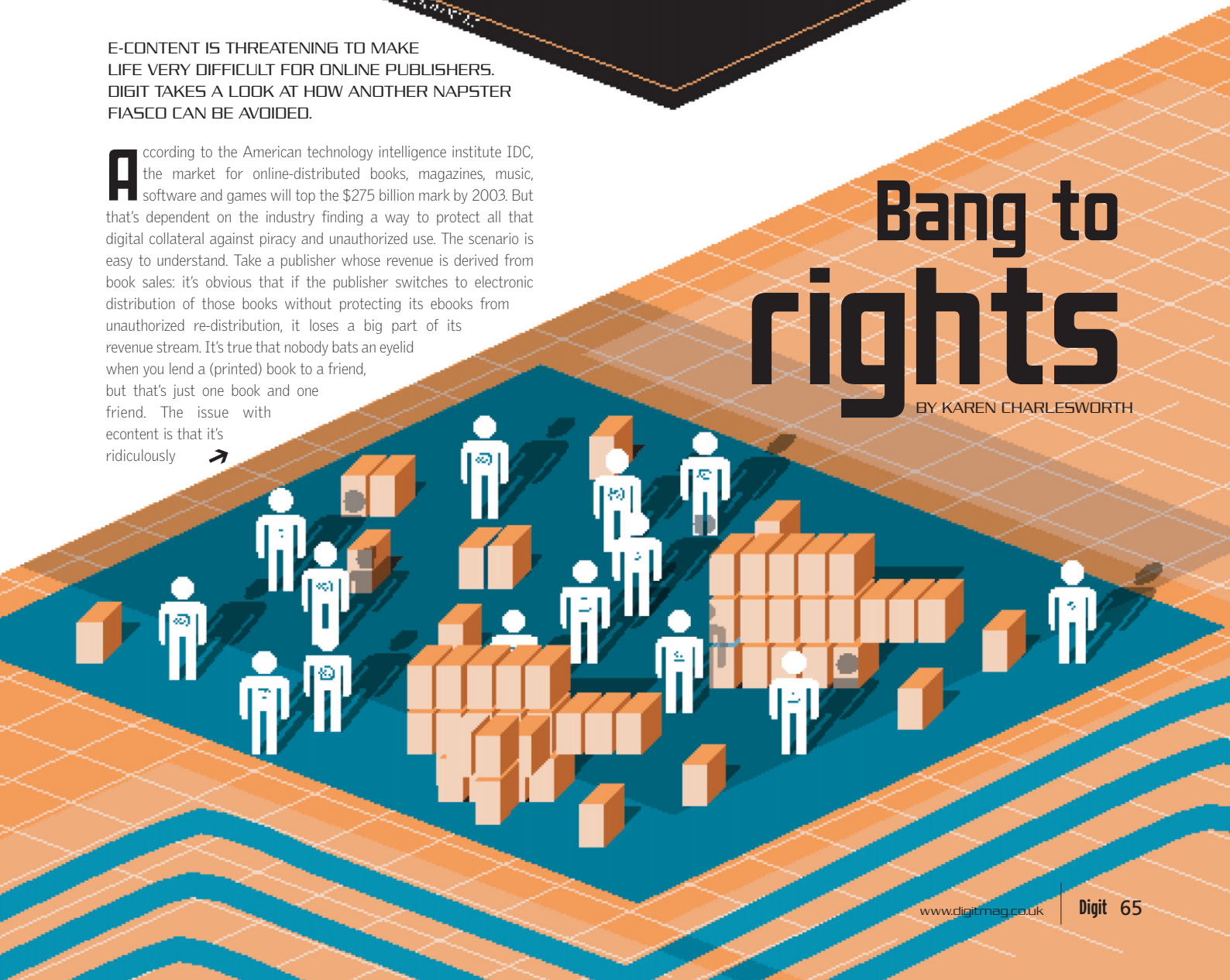


Bang to rights

BY KAREN CHARLESWORTH

E-CONTENT IS THREATENING TO MAKE LIFE VERY DIFFICULT FOR ONLINE PUBLISHERS. DIGIT TAKES A LOOK AT HOW ANOTHER NAPSTER FIASCO CAN BE AVOIDED.

According to the American technology intelligence institute IDC, the market for online-distributed books, magazines, music, software and games will top the $275 billion mark by 2003. But that's dependent on the industry finding a way to protect all that digital collateral against piracy and unauthorized use. The scenario is easy to understand. Take a publisher whose revenue is derived from book sales: it's obvious that if the publisher switches to electronic distribution of those books without protecting its ebooks from unauthorized re-distribution, it loses a big part of its revenue stream. It's true that nobody bats an eyelid when you lend a (printed) book to a friend, but that's just one book and one friend. The issue with econtent is that it's ridiculously

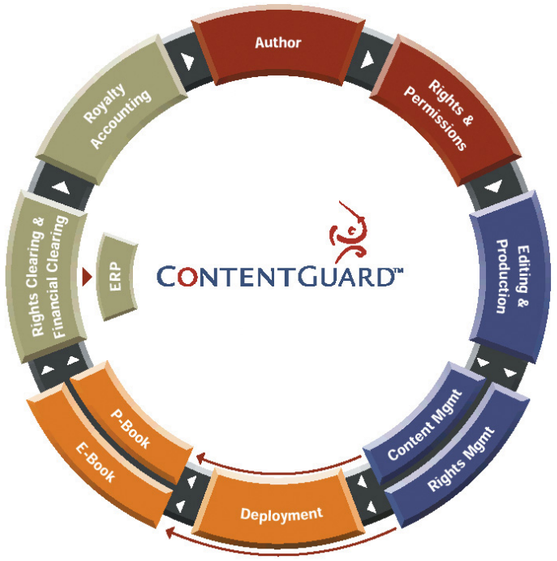


easy to copy and distribute, free of charge and on a grand scale, to all your friends – and also, in the case of peer-to-peer distribution protocols like Napster, to friends you didn't know you had. It's largely this problem, rather than any more technical issue, that's kept the world's publishers, record labels, software developers, and games producers away from wholehearted support for e-selling.

Digital rights management (DRM) is a catch-all phrase used to indicate the process of protecting the rights of digital content sellers during the electronic distribution and use/re-use process. Content can be anything – graphics, ebooks, photographs, music, video, even software itself – anything that's capable of being distributed digitally. And 'electronic distribution' can mean via the Internet, intranets, satellite, broadband, cable, broadcast or wireless networks.

DRM can be as simple as adding a watermark to a graphic before you make it available online, or issuing a licence to users before a file is downloaded.

But in the main, DRM is an issue for the big media players – they're the ones who stand to lose mega-bucks if they don't protect their e-content from abuse – and as a consequence, most DRM systems are large-scale, sophisticated set-ups designed to work with any and every type of e-content, across any type of platform, and most ways of selling it.



Based on XrML, ContentGuard's RightsEdge is an open-specification system and distributed on a royalty-free basis.

Four processes

For all that they go about protecting the content in different ways, all DRM systems are basically premised on four distinct stages in the e-content provision chain: content is created and/or converted into digital form; rules are created to govern the use of digital content; content is encrypted and distributed; and its use is restricted.

The rules are the complicated heart of the process, and much of a good DRM system's functionality is tied up in the creation and enforcing of them: rules can be simple, such as 'pay then download'; or they can be complex, as in 'free download, but incorporating a temporary licence that expires after a few days unless a fee is paid'.

Whether a DRM system is able to enforce complex rules rather than simply stipulating them is often dependent on the architecture of the system itself. Broadly speaking, DRM systems conform to one of two types of architecture: 'end-to-end', which in addition to the standard distribution functions, incorporate reader/viewer software, either proprietary or industry-standard, which enforces usage conditions; or 'open-ended', which attach legal conditions to the e-content that are not subsequently enforced by the system itself (subsequent use is either unprotected or relies on features in the file format itself for protection).

One current problem with end-to-end systems is the time it can take the user to download and install the viewing/reading software that allows access to the protected files: this can typically take up to half an hour or more, and many consumers of e-content are discouraged from accessing content that needs such a heavy investment of time.

Top-level DRM systems allow for the packaging of various different media types into a single download (imagine a track from an album packaged with the album's artwork as a graphics file, together with the lyrics in a text file, for example). And most systems allow copyright holders and/or e-content providers to specify different rights, terms and conditions for each item of e-content. Many are also capable of working with current measures adopted by e-content providers for safe distribution and e-commerce, including the SSL Web architecture, public/private key encryption and the Digital Object Identifier (DOI) initiative which is an under-construction standard that aims to provide unique identifiers for every piece of digital content.

Persistence pays

One of the major issues in DRM is what's called 'persistent' protection – protection that limits the use of the e-content to the extent outlined in the rules under which it was sold, during all use and re-use of the e-content. Most DRM systems currently use software to enforce their rules – typically in the shape of encrypted 'containers' for e-content that apply those rules each time the content is used.

End-to-end systems use features built into their reader/viewer software to prevent copying and printing, as is the case with InterTrust's OpenRights Xaudio, an audio player plug-in for browsers that supports MP3 and AAC in an extended subset of those formats which incorporates rights-protection features.

But software systems can be bypassed and hacked, and don't provide the ultimate in security. InterTrust is pursuing the avenue of secure hardware, which integrates the processing, memory and input/output, or read/write functions within, say, a portable MP3 player. When first switched on, a secure hardware device establishes a secure environment for the DRM protective functions (so they can't be bypassed), the user interface and the audio processing itself.

One difficulty with secure hardware is that it relies on the co-operation of hardware manufacturers – many of whom have no vested interest as they're not e-content retailers, and who are reluctant to limit the content that can be used by their hardware. Another difficulty is that it relies on each piece of hardware running a relatively standard secure architecture (otherwise the e-content must be re-purposed into different flavours to be compatible across a variety of players) and at present no such standards exist. However, InterTrust is working in partnership with hardware components producer Cirrus Logic and microprocessor manufacturer ARM to define and produce devices which support InterTrust's standards.

Standards

As in all developing technology-based industries, the success of DRM is linked to the emergence of standards for rights management protocols – typically, protective features in file formats that can be accessed by DRM systems and reader/viewer software. There are several working groups in operation, whose job it is to agree and put forward standards for file formats within media sectors – among the best-known are the Joint Photographic Experts' Group (JPEG), and the Motion Picture Experts' Group (MPEG).

These initiatives are now working towards incorporating protective features into their file formats. More recent initiatives, usually representing swathes of the media industry such as music, film or photography, have made it their specific business to solve the digital security issue. These initiatives include the Secure Digital Music Initiative (SDMI), the Open eBook Forum (OeB), and the Electronic Book Exchange (EBX). Where more than one initiative exists within a media sector, it's often up for question whose standard will be adopted – and as anyone old enough to remember the hoary chestnut of a debate between VHS and Beta will know, it's not necessarily the most plugged standard that's the best. →

Peer-to-peer systems

The massive success of Napster, the peer-to-peer (P2P) MP3 audio file distribution protocol, has brought the question of digital rights management into sharp focus. Napster exploits a loophole in current copyright law that allows for the private distribution of music between friends, and because the MP3 files in question don't reside on Napster servers, nor does it charge a fee, its principle of P2P redistribution was unchallenged as regards copyright protection until recently.

Three months ago, however, the Recording Industry Association of America successfully obtained a US Congress court ruling to restrict Napster's activities on the grounds that its main purpose was to infringe copyright. Napster, now owned by media conglomerate Bertelsmann, faces a future as a subscription-based service, with possible DRM measures embedded in its files (although nothing has yet been decided on this score).

But although Napster.com may be down, it's not out: its legacy is a host of imitators, all working on some variation of the peer-to-peer principle: Gnutella, Freenet and Macster are among the best-known. The OpenNap project aims to extend peer-to-peer networking to other types of media, a prospect which has some photo libraries and text archives running scared; Napigator is a directory of 'nap' servers which can pass on various types of content (at the moment, mainly music) on a P2P basis.

Wider distribution

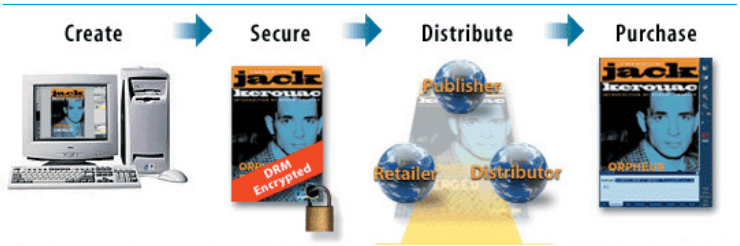
Despite the furore over Napster, the more forward-thinking e-content providers see P2P systems as more liberating than damaging. These systems provide new, and often less expensive, ways to get e-content to a wider audience. The challenge for the music industry along with other e-content providers, is to adapt payment methods and structures to work with P2P systems while still protecting artists' rights and revenues.

The streaming-only model of music distribution that has followed on from Napster is unlikely to be a real solution. Run by record labels, Web sites such as iNoize, my.mp3.com, farmclub.com and emusic.com are not examples of peer-to-peer systems and don't allow the file to be saved locally – hence avoiding the protection issue, but not replicating the appeal of Napster's unlimited-redistribution model.

More likely substitutes for the Napster-fixated may be found in the initiatives on P2P networking, or 'serverless storage' as it's sometimes known in this context, currently being taken by Microsoft with the Microsoft Research Farsite and Berkeley College with OceanStore.

Both of these are large-scale industry-specific initiatives – Microsoft in universities, Berkeley College in military environments – which harness the computers on a local or wide area network as storage space and repositories for shared assets. Both projects have massive commercial potential, and it's certain that they will shape P2P networking in the near future.

Adobe Web Buy technology



- Content is created in any publishing application including Adobe InDesign, FrameMaker, Photoshop and Illustrator.
- Content is converted to Adobe PDF with Acrobat software.
- Adobe Content Server encrypts the Adobe PDF file and packages it as an ebook.
- The ebook is ready for secure distribution and purchase.
- It can be vended or procured between publishers, distributors and retailers who have Adobe Content Server.
- It can also be fulfiled directly to the consumer from a retailer's ecommerce Web site.
- Consumer purchases the Adobe PDF eBook directly from an ecommerce site.
- It is automatically downloaded and locked into the customer's personalized library within the Acrobat ebook Reader for immediate viewing.

DRM systems

ContentGuard's RightsEdge system – which is mainly aimed at book publishers – is based on XrML. Developed by ContentGuard as an open-specification system and distributed on a royalty-free basis, XrML is an extended subset of ordinary XML, but the 'r' stands for 'rights' – and the interesting thing about it is that, like plain vanilla XML, it's able to be extended to any platform and any file format. For now, RightsEdge packages books in PDF format or Microsoft LIT format (for the Microsoft Reader) and covers several levels of redistribution restriction, from free redistribution to a 'multiple key' approach which prevents copying without a new licence.

SealedMedia's eponymous system is arguably the most complete end-to-end solution currently available for Web distribution. It works across all media types, including text, images and streaming audio and video, and the same browser plug-in views all supported content types from all participating publishers. It also covers an assortment of platforms, including mobile phones and PDAs. The unusual thing about SealedMedia is that it uses industry-standard file formats – including PDF, HTML, GIF and JPEG – but the company has developed patented, extended versions of these formats that prevents them being saved, copied or printed without authorization.

IBM's EMMS system was designed for music, although IBM says it can be repurposed for any digital media. EMMS comprises five separate softwares: ContentOwner, which prepares the media for distribution, sets usage conditions and encrypts, compresses and/or adds watermarks; ContentHost, a distribution server; Electronic Retailer, the customer service and promotions handler; Clearinghouse, which authorizes transactions, clears and reports payments; and Consumer, which controls the consumer's access and restricts redistribution.

Adobe's Web Buy technology allows customers to buy PDF documents encrypted by publishers using PDF Merchant, the DRM technology incorporated in the Adobe Content Server. Web Buy is tied to the Adobe Content Server software, although its use of PDF is a definite plus due to the general predominance of PDF as a visual file format.

Datamark's Rhodium DRM solution is intended for images distributed over the Web. The standard software tracks use, adds authentication and watermarking, adds information captions and customizes images (rescales, crops and caches to customer specification) in real time.

Alchemedia's Clever Content protects JPEGs, GIFs, text and PDF documents from being copied, printed or screen-captured. Clever Content encrypts designated e-content as it leaves the Web server, and a Viewer (a browser plug-in) decrypts it for viewing, but prevents further distribution.

Perimele RightsTechnologies and **Pay2See**. These two solutions cover various media types, including music, ebooks, video, audio, software and graphics. But perhaps more exciting than these is the company's recently-declared aim to get into peer-to-peer networking, creating what it calls 'a sort of Napster on steroids' which incorporates DRM measures.

Reciprocal's Digital Clearing Service adds features like Web retail integration with store retail, payment processing, sales reports and analyses to basic Web commerce packages. It's based on a 'permit' model (as an example, in the case of software, a 'permit' is the serial number). E-content is packaged and encrypted, and the customer downloads it; the service checks the customer's computer for a permit, and if one is found, the content can be opened; if no permit is found, the customer is prompted to ask for one. Permits can be freely distributed, exchanged for information (for mailing lists) or paid for; Reciprocal's servers can handle payment processing, or this can be done by the e-content owner's own system.

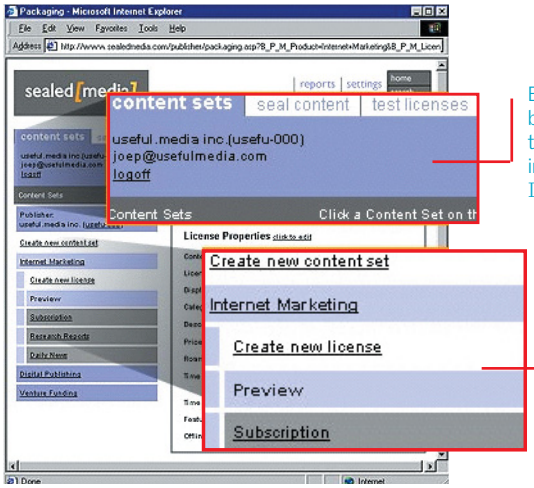
InterTrust is unusual among DRM solutions providers in that it doesn't sell products or services direct to end users. Instead, the technology platform, known as MetaTrust Utility, is licensed to partners who *do*

Sealed Media

SealedMedia takes a simple three-step approach to distributing content. It gives producers control over how their content is packaged, priced, consumed, used and branded.

A publisher is provided with a tool-kit that seals his or her content files within a layer of hard encryption and digital signatures and protects the assets from reverse engineering and unauthorized redistribution. By pointing and clicking in a dialog box, the publisher can prevent printing, screen-grabbing and other unauthorized use of content.

Simple forms on the SealedMedia Web site give content originators control over the packaging and pricing of their products, including who may access the content; when they can access; what can be done with the content; the price associated with viewing, printing, and saving.



Easy and secure Web-based application is quick to setup and requires little integration with existing IT systems

Powerful modular architecture allows you to create any number of contents sets, each with any number of licences.

provide DRM products and services. In the meantime, InterTrust has become possibly the world's largest distributor of non-proprietary, open-standard DRM technology. InterTrust is also developing the OpenRights Architecture, a set of standard component interfaces supporting DRM applications. The company also plans to launch the Digital Rights Management Institute in the near future, as a means of open discussion of the OpenRights initiative with a view to establishing industry-standard specifications for ecommerce.

As well as off the shelf solutions, there are bespoke providers, too – basically software developers and consultants who specialize in tailored DRM solutions, such as UK-based Rightscom. And there are companies whose DRM systems are specific to one type of platform, such as Florida-based DigitalOwl, which provides DRM technology to handheld device supplier TealPoint, for protection and viewing of handheld content via its TealDoc reader.

Double-edged sword

The principle of DRM is in many ways a double-edged sword for large-scale e-content providers who sell mainly to consumers. While business users of e-content are more prepared to jump through a few hoops to lay their hands on information – including large payments, time-consuming searching, and complex licensing agreements – the consumer market is less forgiving, and much less likely to tolerate some of the more arcane or time-consuming measures that many e-content providers see as the safest way of protecting their material.

For record labels and film companies in particular, there's a very definite possibility of going too far with DRM, protecting e-content so heavily as to make it unusable by their customers and engendering a mass movement of those customers to other, less barriered content vendors. Napster is often cited as an example of 'frictionless' distribution of e-content, and its phenomenal success underlines the point that e-content providers who set up rigorous and heavily restrictive conditions around the use of their content, will be less popular than those whose systems are simple, fast, cheap, and – above all – flexible.

One of the key questions governing the issue of flexibility is the 'halfway house' – how to allow users to re-distribute their files on a small scale. In a sense, this is an attempt to replicate the rights governing the use of, say, an audio CD: it's never been taboo to lend that CD to a friend. But with a digital model of rights management, it's either all or nothing – either all re-distribution is prevented, or it's all allowed. This aspect of the DRM conundrum poses a serious risk to business-to-business magazine publishers in particular, a large part of whose circulation figures is derived from secondary readership – the famous 'office copy' that's passed from desk to desk.

On the other hand, nobody who has any stake in the world of e-commerce has any doubt that some level of DRM is the key to a widescale adoption of electronic distribution: until content providers can be sure their content is protected, they are likely to be reluctant to launch into widespread e-distribution. It's likely that customer demand will drive the extent, and the depth, to which DRM systems are put in place by e-content providers.

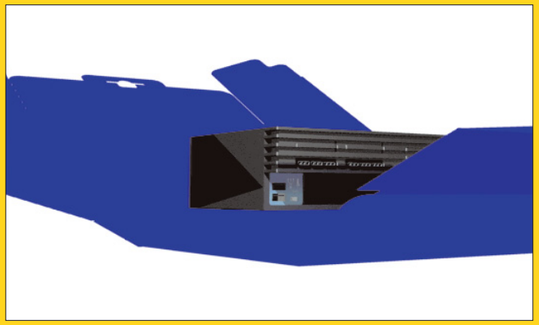
Contacts

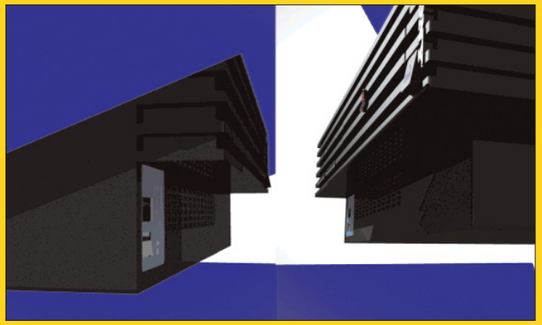
Adobe Web Buy and Content Server: www.adobe.com/products/acrobat/webbuy/main.html
Adobe Acrobat Reader and the PDF format: www.adobe.com/products/acrobat
Alchemedia: www.alchemedia.com
ContentGuard: www.contentguard.com
Datamark: www.datamark.co.uk
Electronic Book Exchange: www.ebxwg.org
Freenet: http://freenet.sourceforge.net
Gnutella: www.gnutella.co.uk
IBM EMMS: www.ibm.com/software/emms
INoize: www.inoize.com
Intertrust: www.intertrust.com
Macster: www.macster.com
Microsoft Reader and the .lit format: www.microsoft.com/reader
Microsoft Research Farsite: www.research.microsoft.com/sn/farsite
Napigator: www.napigator.com
OceanStore: http://oceanstore.cs.berkeley.edu
Open eBook Forum: www.openebook.org
OpenNap project: http://opennap.sourceforge.net
PatentCafé's DRM resource page: www.lockmydoc.com
Perimele: www.perimele.com
Reciprocal: www.reciprocal.com
Rightscom: www.rightscom.com
SealedMedia: www.sealedmedia.com
Secure Digital Music Initiative: www.sdmi.org
XrML: www.xrml.org

onedotzero5: PlayStation2 sees emotional 3D gameplay go live

By Matthew Bath

Billed as an adventure in the moving image, onedotzero5 is the world's most challenging DV and 3D event, pulling together boundary-breaking creators such as State and onedotzero's PlayStation2 project.





Voyage Of Emotion
Sony Computer Entertainment Europe (SCEE) planned a massive roll-out of the PlayStation2, and the hype towards launch-day reached almost fever pitch. The PS2 *Voyage Of Emotion* video, created by State and onedotzero, manages to capture the buzz and anticipation that gamers would feel unwrapping the new console.

Onedotzero5 is all about the moving image. Not the humdrum, bread-&-butter kind, though. Instead, it celebrates experiments in digital video, film, and 3D, pulling together 3D artists, graphic designers, Web makers, and multimedia producers to create leading-edge work.

Divided into several sections – such as j-star, which celebrates the freshest contemporary style from Japan's finest moving imagemakers, and wow+flutter, which is sponsored by *Digit* – onedotzero5 is a showcase of the best in new media and moving image. It is held at London's Institute of Contemporary Arts over April and May (see sidebar for dates), with events, features, talks, and the popular bar events planned.

It also gives you the chance to see work such as the *Voyage Of Emotion* for Sony Computer Entertainment Europe's (SCEE) PlayStation2, which was crafted by onedotzero5 and State.

The movie, which shipped with the PlayStation2 and has appeared on gaming magazine DVDs, shows the console being unwrapped in crisp 3D, before the viewer is plunged into a riot of gaming video, previews, and fast-paced imagery that is designed to stir the emotions.

Sony initially approached the onedotzero team (as well as holding the show, the team also produce work) with a brief that the video needed to communicate the strength and variety of emotions that the console could convey through the range of games available. The video also had to capture the feeling of anticipation and excitement towards the power of the console, as well as pump real specifications out to the audience.

Games played an obvious part, says Philip O'Dwyer, designer at State: "The raw material for the piece was a huge amount of games footage from publishers, together with some 3D models of hardware and tech demos from Sony. Our initial concept was to create a voyage of emotion, where through the collation of all material, with meticulous editing and original sound, we would take the viewer on a journey through a whole range of moods."

With onedotzero acting as the production company, it commissioned State to create the piece and original music composed by Nick Ryan (also featuring at the show). With the client liaison, collation of source material, and time schedules being handled by onedotzero, State was freed to work on a more emotional design.

"The first exercise was to devise some sort of structure," says O'Dwyer. "The piece was quite long, and needed a lot of material from different sources. The concept of a voyage of emotion provided a framework around which to arrange the footage.

"We created a series of tests to experiment with ways of treating the footage and creating transitions between pieces of footage, to form it into a coherent whole.

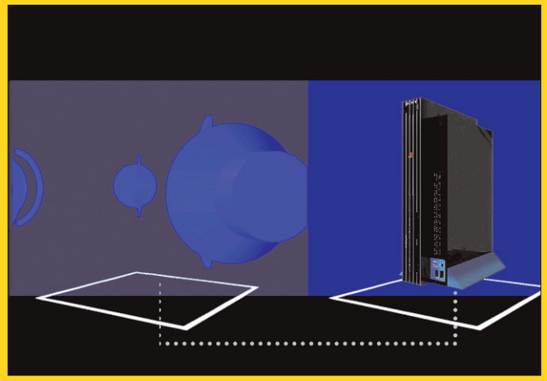
"As the piece relied totally on the soundtrack for it to be a success – the visuals and the audio were to be very closely entwined – it was a process of working back and forth between State and Nick Ryan. We would do a test, send it to him, and he would send us tests in response – and vice-versa. We went through many rough cuts and reworkings before we got the right pace and range of intensities in both sound and visuals," O'Dwyer adds.

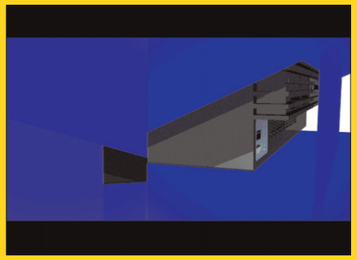
The editing was done using Media 100, with footage supplied either on Beta, or digitally on CD. Transitions and special treatments were created with Adobe After Effects. Sony supplied the 3D models of the PlayStation2 console and controller in StrataStudio format, which State used to render the animations.

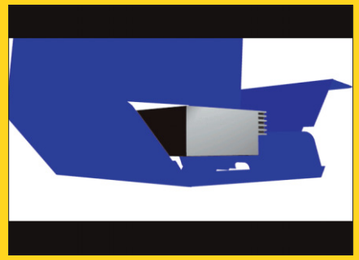
The result is a lengthy (by promo standards) piece that shows off not only the graphical power of the PlayStation2 through clips of games, but captures the almost emotional pull that the system brings to the next generation of gamers. For many, it's also the first contact they may have with Sony's übermachine.

And that's what onedotzero5 is all about – showing the best digital video that fuses together multimedia, graphics, 3D, and creative juice to other professionals looking to hone their edge. You can see this video at the show, and grill the creators as well.

Over the page, *Digit* has provided a potted guide to some of the more interesting parts of onedotzero5.

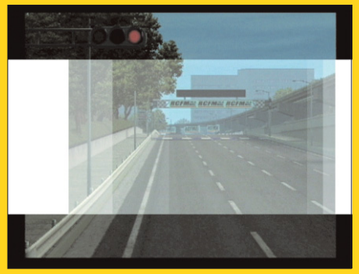




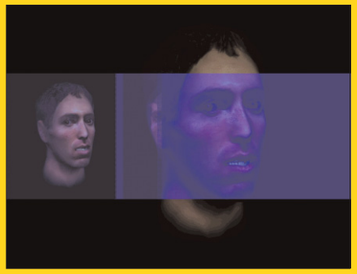


3D gaming models
Sony provided State and onedotzero with 3D models of the PlayStation2 console in StrataStudio format, plus other technical specs and 3D models. State used these as a base for the animated introduction that sees the PlayStation2 unwrapped. The emotional mood has been set for a trip through its processing power.

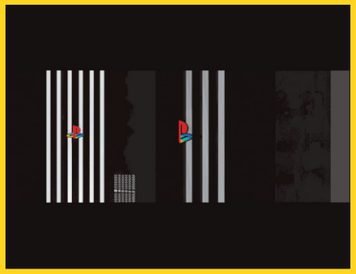
MotoGP is one of the first racers to hit the PS2 console, and the team used footage for the video.



Ridge Racer V spoke to gamers as a next-gen title, and State utilized its send of speed in the project.



PS2 uses an 'emotion engine' – and State tried to replicate that emotional pull.



This is anger, and is accompanied with a pumping sound track and aggressive gaming footage.

3D models with crisp lighting were used to show a close-up view of Sony's new wonder machine.

Event details

onedotzero5 pushes the boundaries, exploring the terrain of digital cinema, motion graphics, and new forms and hybrids of moving image from around the globe. It includes world, European and UK premieres plus stunning work from ground-breaking and underground contemporary talents.

wow+flutter 01

Sponsored by *Digit*, this is a pioneering programme of motion graphics and future visual styles from a new generation of non-traditional filmmakers, such as graphic designers and illustrators. Features new work by Run Wrake, Andy Martin, Le Cabinet, Richard Fenwick, and D-fuse.
Cinema 1: Friday, April 27 (19:00); Wednesday, May 2 (19:00); Thursday, May 3 (21:00)
Cinema 2: Saturday, April 28 (18:30)

Venue

April 27 – May 6, 2001
Institute of Contemporary Arts,
The Mall, London SW1
020 7930 3647

onedotzero5: adventures in moving image and effects mapped out

By Matthew Bath

onedotzero5 is here, taking place in London between April 27 and May 6, 2001, and will showcases some of the best talent in the realm of the moving image from around the globe. *Digit* details the show below.

Enter the animation
onedotzero5 isn't about low-rent digital filmmaking, but is a chance for creative professionals to witness some of the leading-edge digital moving images in the business, such as idents for Radio Head (top left), Coldplay (top right), and from companies such as D-fuse (bottom right) and the Light Brothers (centre).

Game animation features highly, such as the Square's *Final Fantasy* series (top).

Billed as the largest digital film festival in the world, onedotzero5 includes exclusive European film premieres – the cream of longer-form digitally-inventive narrative films, animation, music promos, commercials, and motion graphics. Also featured are discussions and debates on emerging developments in digital art. A new section also debuts in the shape of J-Star 01, which showcases new media projects and special features from Japan.

On the right wavelength

Screenings include Wavelength 01, which spotlights previously banned, alternative, or rarely shown versions of music video and commercial work, with offerings from Designers Republic, Shynola, and Tim Hope. Lens Flare 01 includes exclusive visuals from computer gaming, including unreleased and contemporary intro movies. Expect to see the best visuals the PlayStation2 has to offer, plus showings of the much-hyped *Metal Gear Solid 2* and *Onimusha Warlords*.

Digit magazine is also involved, and is sponsoring the Wow+flutter 01 strand. This features pioneering motion graphics and future visual styles from a new generation of non-traditional filmmakers, such as graphic designers and illustrators. The strand features work from the likes of Run Wrake, Andy Martin, Le Cabinet, Richard Fenwick, D-fuse, and others.

Also featured is J-Star 01, which includes anime, motion graphics and music videos, and Extended Play JP, which is a special presentation of short Japanese sci-fi films, made with digital technologies. A J-Pop lounge night will round off the far Eastern flavour, with an excursion into the world of Nippon pop, covering retro, anime, and TV themes.

Presentations will feature over the course of the festival, with visitors able to get up close and personal with the content creators. Topics include using Macromedia Flash in cinema, and a look at the relationship between director and designer.

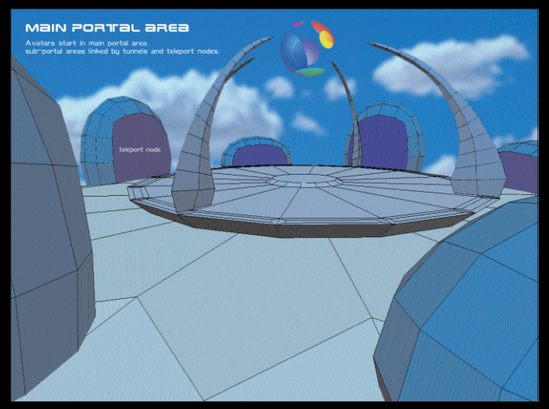
Finally, visitors can see European premieres of movies such as No Maps For These Territories – a documentary on sci-fi writer William Gibson as he wanders around the US, and Stereo Future, a genre-fusing Japanese feature.

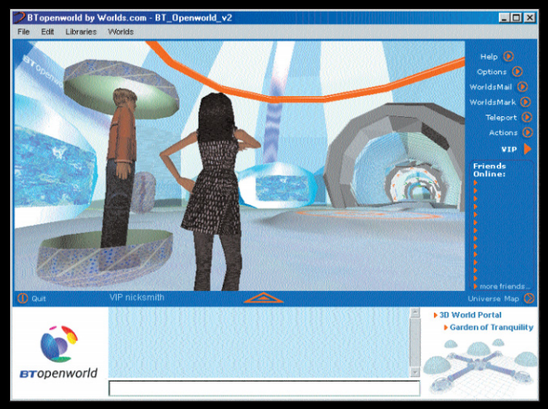
Full details on the show are on page 74 and early bookings are recommended.

BTopenworld creates a fully 3D Web with 'Virchitectural spaces'

By Matthew Bath

At last, it seems that Gibson's *Necromancer* vision of the Internet as both a 3D cyberspace and virtual meeting world is about to be realized, thanks to BTopenworld. *Digit* paid a visit to the fledgling project.





From creation to reality
The main portal area (above) was mocked up with Nendo 6.1.1, then built using World Shaper. The result (above, right) is a realistic 3D world with high-resolution textures that can host hundreds of people conversing in real-time. The interface is a reskinned Worlds.com browser that was created in Adobe Photoshop.

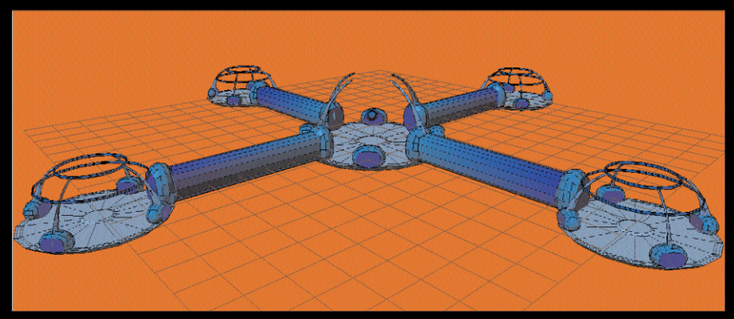
Stepping into a fully realized, populated, and believable 3D world hosted on the Web is quite an experience. Creating it, according to its architects, is another experience entirely. Yet BTopenworld manages to create not only a sense of wonder and foster a community of interactive avatars, it brings together a creative and technical vision that pulls the Web out of its 2D roots, and plants it firmly into the realm of 3D.

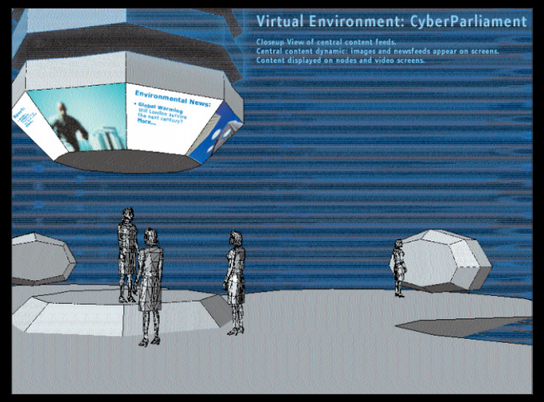
According to Nick Witte-Vermeulen, lead creative on the 3DWorlds project at BTopenworld, the aim wasn't simply to provide something compelling for BT's ASDL broadband customers, it was to invent a new paradigm.

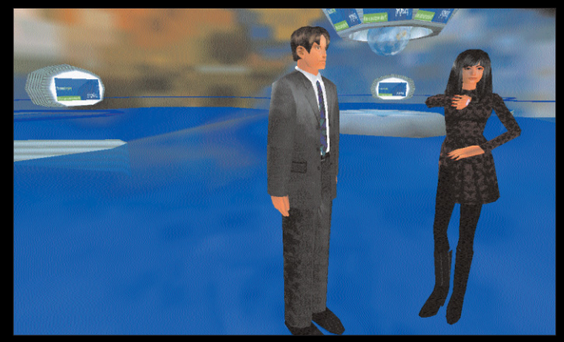
"We believe that this is more than chat. It bridges the gap between surfing for text information and spending time with others in a virtual community. Because of the 3D experience and the viewpoint, you really feel as though it's you that's in there, instead of a flat, smiley icon."

It's an impressive first step. Once logged into the world, you can wander around a 3D portal, complete with far-off scenery and flying airships, then choose a world to transport to. The worlds are fully textured, with light-sourcing, live interaction (such as birds fluttering into the sky as you approach), and character interaction. Not only can you talk to other 3D avatars, you can fully govern your own appearance and actions. Want to dance, or sneeze loudly? Simply instruct your avatar to behave how you want it to.

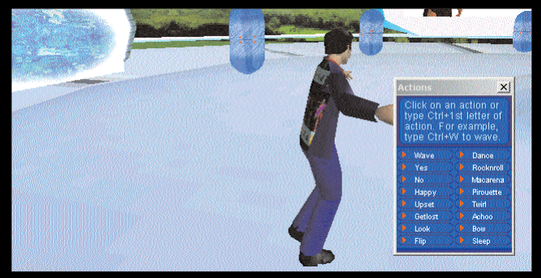
The team initially had to get to grips with how an online 3D world would work, says BTopenworld producer Gordon Baty: "We identified Worlds.com as the leading provider of immersive environments for the Internet, and so embarked on a joint venture. We then constructed 3D mock-ups from which we derived art similar to architectural plans and elevations."



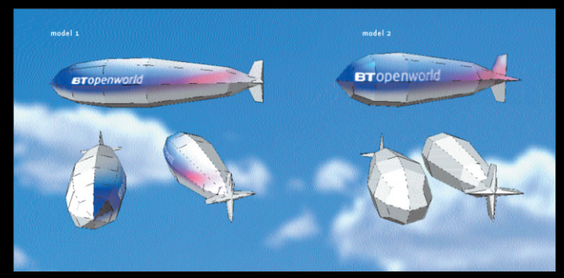




The original design is shown on the left, with real-time content being added to the 3D world. The result above shows how the world is seen by users.



Shake it, baby. Make your avatar dance, fall asleep, and look around with a simple pop-up menu. Gestures are seen by other avatars in real-time.



A believable world needs lots of ambient objects that make up the environment, such as this BTopenworld airship that floats above the main portal jump-station.

Each world offers a unique experience, and needs an equally unique approach to its construction, says Witte-Vermeulen. "The central portal world was designed with a modular, colour-coded concept so that we could expand it later, and add rooms and nodes. We wanted users to see this area grow before their eyes," he says.

"Another example is the CyberParliament world. We wanted a kind of nexus for discussion, with live, topical news feeds from our portal being shown on various surfaces. The landing platform is designed around a central podium featuring spinning headlines. Surrounding the platform are four nodes, which can contain dynamic content or advertising," says Witte-Vermeulen.

Altering the mood

The creation of the environments was always in a state of flux, according to Witte-Vermeulen. "We weren't sticking dogmatically to the design of Gregorian pillars, but walking around the world and questioning if it hit the mood, how the ambience of the environment feels, what kind of people will like this space, and so on. There were also constraints in software, complexity of objects, and the amount of detail we could show in terms of graphical quality.

"Technically, there were the usual 3D issues: primarily polygon count, need of complexity on foreground and background components, and also the fidelity of objects and scenes when considering such things as pixellation and sprite versus 3D construction," he adds.

The team didn't resort to heavyweight tools to create the project. They mainly used Nendo to mock-up 3D concepts, and export objects into Discreet 3DS Max format. The 3DS Max objects were then funnelled into the proprietary World Shaper software developed by Worlds.com. Other software packages used included Adobe Photoshop 6.0 to scan and edit the textures, and reskin the Worlds.com 3D browser. An Epson Expression scanner captured 35mm prints developed from a Nikon FE2 camera with 20mm AIS lens for textures. A digital Nikon Coolpix 950 was used "to pump out hundreds of megabytes of images of the Gloucestershire countryside".

Technically, the site is impressive. Live, database driven content, such as news stories and features, are mapped into the 3D space in real-time, and the team wants to start experimenting with adding live video and audio to the worlds.

It's also been a big hit with early users: "Most users are really impressed when they try voice over IP, or realize that their avatar's gestures are transmitted in real-time around the world. Some more experienced users are even customizing their avatars beyond known limits. They've showed me how to grow wings and hover, which was cool," says Witte-Vermeulen.

Software

Nichimen Nendo 6.1.1
Adobe Photoshop 6.0
Worlds.com World Shaper

Hardware

Epson Expression scanner
Nikon FE2 with 20mm AIS lens
Nikon Coolpix 950 digital camera
HP 600MHz workstations

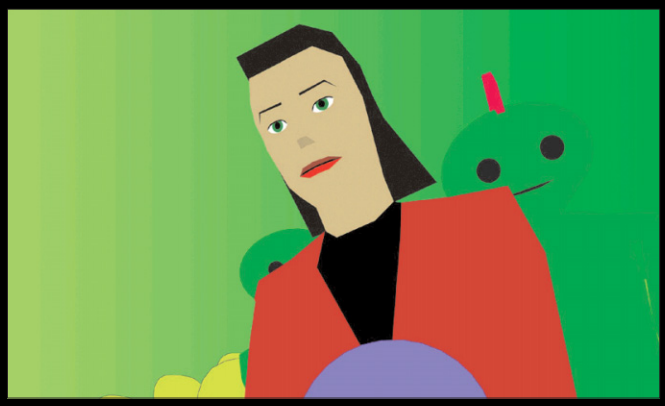
Details

BTopenworld (3DWorlds),
www.btopenworld.com/3dworlds

Return of the RobotMasters killer animation sequences

By Neil Bennett

RobotMasters has breathed new life into 3D models by transforming them into Macromedia Flash files and showing them off on the Web. *Digit* wandered around the team's animated online world.



It's a corporate life
By using 3D models turned into 2D Flash animations, *Workgroup Alpha* can show scenes from a distance and close-ups of characters with ease. This style also works well to show the stark lines and colours of corporate life, mimicking the characters' only method of communication – the PowerPoint presentation.

Recently launched entertainment channel E4 is following in the footsteps of its terrestrial parent, Channel 4, by bringing the best new animation to screens everywhere. As well as replacing Sky One as the first UK viewing place for *ER* and *Ally McBeal*, the channel has used its Web site to showcase experimental animation from the top animators from Channel 4's late-night 'arena', 4later, among others.

One of the converts, producing Web animation for the first time, was RobotMasters. The Glasgow-based collective, based around brothers Paul and John Butler, produced the *B-creatures* animation for 4later (*Digit* #23). A satirical swipe at corporate culture, it consisted of ten three-minute animations designed to show the backbiting and personal ambition behind the false proclamations of company togetherness. It can also be watched on the E4 site as a streamed video.

Using 3D with Flash

Workgroup Alpha was designed to take the themes within *B-creatures* into new areas and move from the late-night ambient visuals of that work into a serialized story for the lunchtime or evening viewer. The medium was also to change, with TV-based 3D being replaced with 2D representations of 3D animation using Flash.

"We wanted to continue and extend the *B-creature* concept; making it more accessible by using a narrative storyline with characters," says John Butler. "The idea of a heroic team of consultants came directly from the *Wilderness Lab* episode of *B-creatures*, with two male and two female members as central characters."

Wilderness Lab caricatured corporate outward-bound courses, showing the characters attempting certain tasks and getting wiped out in order of initiative. Only the character that hangs back and doesn't take any risks survives.

"From there it just ran away with itself," says John. "We had to make something that would work on the Web, so we thought a dialogue-driven piece would be better. It's not possible to do such musical pieces when you have to bring an episode in at around 1MB in size."

Workgroup Alpha tells of four salarymen and women who form the "modular, instantly deployable" consultancy team of the title. They are fired off to their first mission in their modern mobile office, which bears a certainly similarity to a portaloo. However, due to an error they end up trapped in space and travelling round multiple dimensions, bringing their corporate philosophies to everything they find.

Animating the Web

Each episode is approximately 90 seconds long. There are 20 episodes in total, around half an hour of animation in total, which are in process of being put up on the E4 Web site at a rate of one each week. In total they took about a month for Paul to write and John to prototype – and two months of solid production work for John after that.

Working with dialogue allowed John to tone down the animation, which was necessary with Flash as the output medium.

"Creating a narrative changed the sort of work required, not really the amount," says John. "If you are doing everything visually, the animation needs to be better. We managed to hit on a very simple style for *Workgroup Alpha*, using only very small movements. There is no exaggerated or stylized motion as you would get in a proper animation."

By including dialogue in B-creatures, RobotMasters was able to reduce the need for movement.

Software

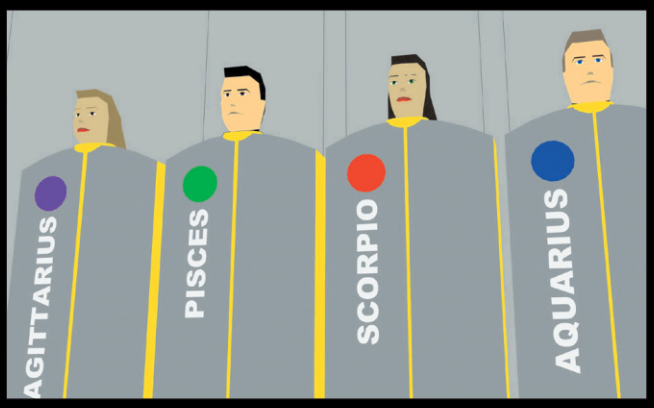
Discreet 3DS Max 3
Discreet Character Studio
Ideaworks3D Vecta3DMax 1.1
Macromedia Flash 5
Sonic Foundry SoundForge 5.0
Native Instruments Reaktor 2.3
Cubase VST 5
Propellerheads Reason

Hardware

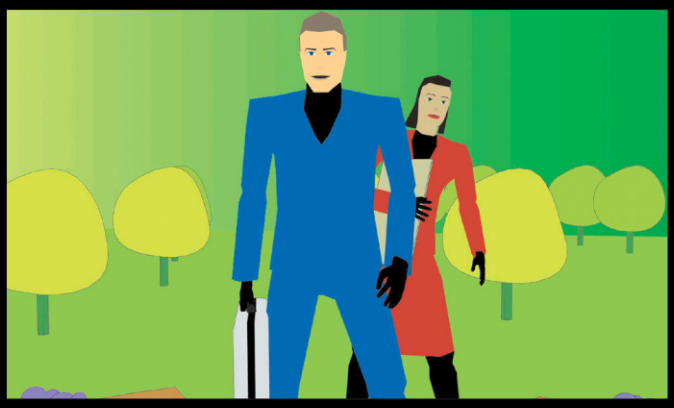
A selection of Windows workstations

Details

RobotMasters, www.los.org.uk
E4, www.e4.com



Four of a kind
Unlike its predecessor, B-creatures, the four main characters in *Workgroup Alpha* have distinct personalities through using voice actors like Ed Bishop.



No imperfections
Workgroup Alpha shows alien worlds as the characters perceive them – with only what is 'relevant' shown and everything else ignored.

***Workgroup Alpha* style sits comfortably within the Flash-heavy E4 Web site.**

The brothers wanted to use the same style as *B-creatures*, showing the world as the characters saw it – where only 'relevant' detail is shown and everything else is out of sight.

"The style is half way between comic book, animation and corporate presentation," says John. "We used bright, emblematic colour for the characters. We wanted to get a bit more sci-fi and a lot less office- bound. The characters have no shading, and the backgrounds use outlines and flat colour rather than shading to define shapes. We wanted a style that was simple to generate but good-looking and not as murky as a lot of mainstream CG."

The voice of Reason

To achieve the look he wanted, John created each piece in 3DS Max and used the Vecta3DMax plug-in to output to Flash, where it was edited together and items like titles applied. The plug-in proved a little flaky at times but worked eventually. John also performed a great deal of audio work to integrate the voice actors and music into the animation, using a mixture of SoundForge, Reaktor, Cubase VST and Reason.

John also spent much time optimizing the file size of the finished files in Flash, for example removing discrete frames where possible.

"This was good in that it developed into a style of its own," he says. "I've seen a lot of 3D that has been traced in Flash, but we could not have spent the time doing that with the amount of work to be done."

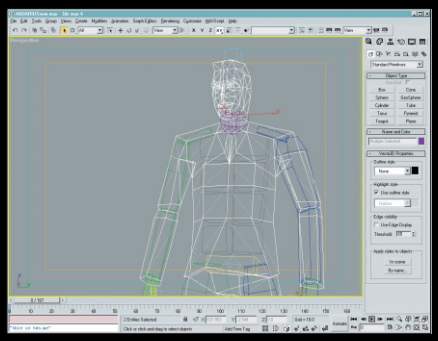
John praises all the tools that let him to create *Workgroup Alpha* – although he does know what he'd like to see in the future to make his work easier.

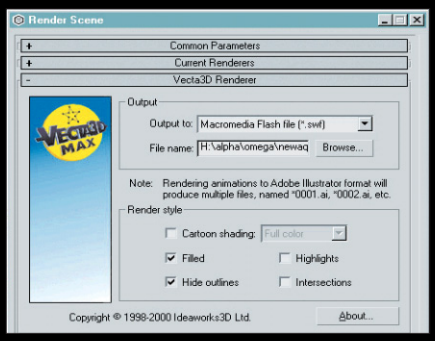
"I could not have done without the Max/Character Studio combination – and it would not have been possible with anything other than the Vecta3D plug-in. Flash is pretty simple to use for animation, but it would be nice if editing scenes was a bit better."

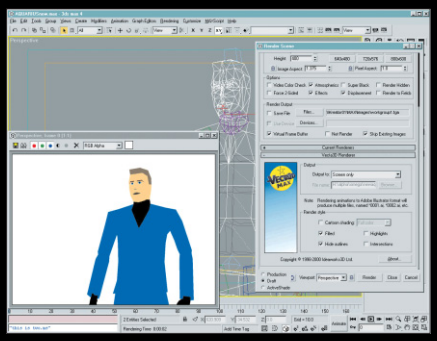
Future additions to Flash that John would like to see include the ability to stretch an audio track over several scenes without using the loadmovie function and preview selected scenes rather than the whole movie. He would also like to see the trimming/cutting tools improved.

The series finishes in late summer, but it's unlikely to be the end for *Workgroup Alpha*. The brothers are developing a second series for approval by E4. This will follow in the same style as the first, though John is interested in trying new technologies that will appear in the coming months – including Shockwave 3D. However, he's philosophical about them as well.

"The idea of Flash or Shockwave actually having a 3D engine sounds good in that it would free us from the restrictions of pre-rendered frames," he says. "We will certainly be trying these things out – but sometimes constraints can lead to creative solutions. The fact that Vecta could not create shaded output when we were building *Workgroup Alpha* was actually a blessing, as we used the outline style for backgrounds which looked good and kept file size down."







Vecta3DMax works within 3D Studio Max to render 3D models into 2D vector animation files in Flash format (.swf). To keep file sizes down, users must first give their models the most basic of attributes such as outline style – then just select Vecta as an alternate renderer. Further optimizing is often necessary in Flash itself.

Grammy award ident is Xstatic!

By Linda Rosner

Creating TV graphics that will be seen live all over the world is a tall order, but one that Xstatic fulfiled.

And the winner is...
US-based effects company Xstatic! Studios created the ident for the 43rd Grammy Awards, using cues from the logo to create live templates and sequences.

Xstatic! Studios in the US has produced a spectacular motion graphics package combining 2D and 3D animation for The 43rd Annual Grammy Awards broadcast on US television network CBS. The package included the main title graphics, graphics introducing nominees and announcing winners, bumpers and background plates, as well as elements used in network promos for the show.

Xstatic! Studios' graphics helped to give the Grammys a fresh, new look. Designed and directed by Vincent Jimenez, the graphics are based on the Recording Academy's diamond shaped logo in which icons representing a keyboard, a singer, a guitar player and a saxophone are grouped around the familiar gramophone. In Jimenez' executions, the diamond shape is integrated with live action and 3D elements.

"The graphics play a key role in setting the tone and the look of the show," said Cossette Productions executive producer John Cossette. "The package that Xstatic! Studios created was perfect in that it has a very contemporary feel evoking today's music while recalling the rich heritage of the Recording Academy."

In many of the elements, diamonds are laid out in an animated grid pattern, lending depth to the design. "Vincent took advantage of the Academy's logo, using it to create a look that is very different from other awards shows," explained Xstatic! Studios executive producer Allan Wells. "The nominee plates, for example, feature sharply angular video holes that are quite unusual. It gave the whole package a high tech look that wasn't harsh or in your face."

In addition, virtually all of the individual elements are animated, and many feature 3D elements, including models of the icons and the Grammy awards statue. "We used a rack focus on the centre part of the trophy, so that as it rotates, different parts of it move into and out of focus," Jimenez said. "The grid pattern animates as well, as a square here or there pops in and out, like a digital screen"

Many of the design elements, such as the nominee plates, had to perform a practical function. "They had to be able to accommodate a lot of information – for a song you might have a dozen names," Jimenez said.

The Grammy Awards show was a live event broadcast internationally. Although some of the graphics were incorporated into pre-built segments, most were added on-the-fly over the live feed – so the templates needed to be instantly customized.

Xstatic! Studios' other credits include The Golden Globe Awards and The People's Choice Awards.

Solar 3D space no final frontier

By Linda Rosner

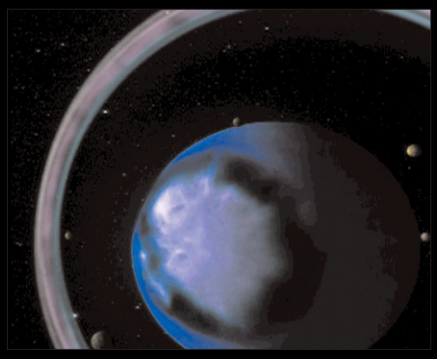
Look! Effects creates 3D intergalactic journey for indie feature film *First Watch*. *Digit* beamed aboard.

Look! Effects recently produced a five-minute sequence of 3D animation for Gotham Entertainment's independent feature *First Watch*. The sequence consists of a single, extended pull back where the camera lifts out of an aerial view of the Earth, travels through the Solar System, leaves the Milky Way and arrives in another galaxy. The film tells the story of an encounter with a highly advanced alien civilization.

In producing the CG sequence, Look!'s goal was to aim for the highest possible degree of physical accuracy. Before beginning work on the animation, visual effects supervisor Henrik Fett spent several weeks researching the project, including visiting the American Museum of Natural History in New York, where he obtained the latest photographic images of the sun, the planets, and their moons. He also gathered data on the size, mass and composition of the planets.

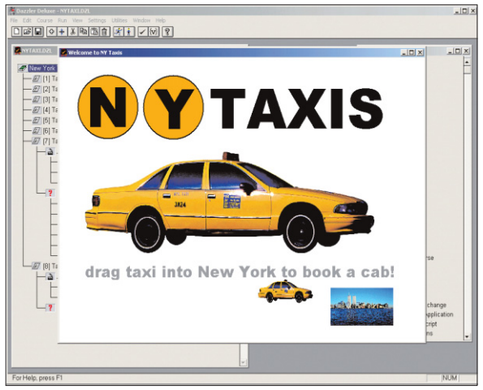
From this, Look! animators were able to build extraordinarily detailed models, place them in their correct relative positions and define a realistic flight plan for the camera. "The camera passes quite close to some of the planets, so we had to put a lot of detail into the models, especially as this was being done at film resolution and will be projected onto a big screen," explained Fett. "Our texture maps were very big; each frame of the sun took 12 hours to render."

Perhaps most remarkable of all was that Look! was able to produce the sequence on an independent film budget. A similar, shorter sequence produced for the film *Contact* is estimated to have cost more than $1 million. "We took it on for the challenge," Fett said.



Indie feature *First Watch* needed a fantastic 3D sequence of the stars, but had to hit budget, too.

DAZZLERMAX DELUXE 3.1



Create your own computer-based training courses and multimedia presentations. Originally sold for £995 plus VAT, DazzlerMax Deluxe 3.1 acts as the glue for assembling all your multimedia elements. And it's yours for FREE this issue. Text, sound, pictures, video and animations can be incorporated into your presentations. Just drag-&-drop the appropriate icon. It's all accomplished with a few clicks of the mouse. You can then publish your course or presentation to CD. This workshop covers the basics, but DazzlerMax Deluxe 3.1 offers a wealth of multimedia goodies.

Software

Dazzler Max 3.1

Requirements

Windows 95/98/NT/2000

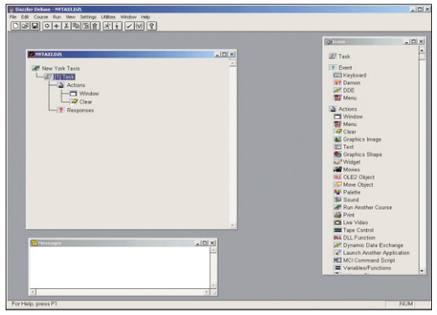
Contacts

Intelamedia, 020 8947 1990
www.dazzlesoft.com

CDigit 36

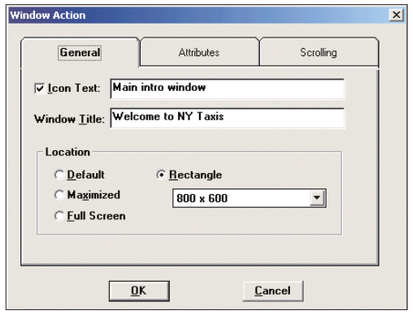
DazzlerMax Deluxe 3.1, worth over £1,000, is available FREE on this issue's CDigit. Turn to page 10 for full details.

STEP 1



This workshop will create an interactive kiosk for a fictional taxi company based in New York. It will start with an interactive slide show, allow users to drag-&-drop elements around the screen, then take and record booking details for a taxi request. To begin, click the New Course icon (it looks like a piece of paper, and is located in the upper-left of the control bar).

STEP 2



A new Course window will appear, with a default Task icon in place. The default task will create a new window, and clear the screen. Double-click on the Window action in the Course window, and the above dialog box will appear. Give it a title as above, and change the resolution size to an 800-x-600 rectangle. You don't need to worry about the other tabs in the dialog box for now.

STEP 3

From the Icon palette, drag a Graphic Image icon onto the Actions icon in the Course palette – this lets you add an image to the Presentation window. Double-click the placed Graphic Image icon, and choose an image from the resulting dialog, then press Define Location to place it on the Presentation window. Once placed, double-click the image, then choose a transition for it.

STEP 4

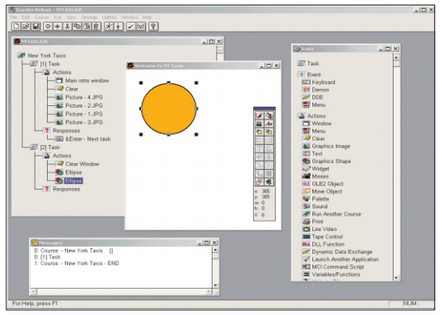
I created four images for this scene. The aim is for each image to appear on the screen one after the other. With the first image placed (and now having a transition which governs how it appears), you'll need to drag three more Graphic Image icons under the first in the Course window. Double-click each icon to first place the image, then double-click it again to add a transition type and time.

STEPS 5-10

STEP 5

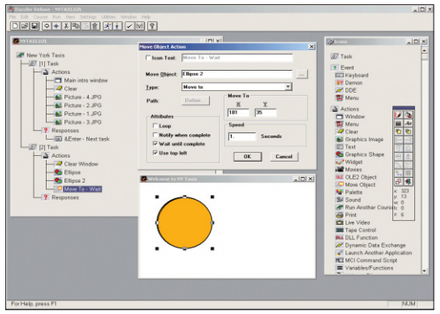
Once the images have been placed, you can test the scene by pressing the Run icon in the control bar. Next, we need to add a button that will take the viewer to the next page. Drag a Push Button icon from the Icon palette under the Response icon in the Course window. Double-click it, then press Modify Location to place the button. Leave the Resulting Action as Next Task.

STEP 6



To create a new Task, drag a Task icon from the Icon palette onto the Course window. Under its Actions icon, drag over a Clear icon and set it to clear the entire window. Next, drag over a Graphics Shape icon, and double-click it. In the dialog box, change the shape to Ellipse, then under the Attributes tab, change the fill and outline colours. Finally, press Define Location to draw the ellipse.

STEP 7



Duplicate the ellipse by selecting it in the Course window, then copy-&-paste the icon, and rename it Ellipse 2. We now want to animate this second ellipse so it slides across the page. Add a Move Object icon to the Course window, and set the Type to 'Move to' and enter in the destination co-ordinates. Set the speed to 1, and check both 'Wait until complete' and 'Use top left' radio boxes.

STEP 8

We now want the scene to pause, so drag a Pause icon under the Response icon in Task 2, and double-click it to set a delay of one second. Next, create a new Task, and under Actions, drag a Text icon. Double-click to enter the letter 'N', and set the font style under the Attributes tab. Click Location: Modify... to place the text, which should be positioned over the first ellipse. Repeat for the letter 'Y'.

STEP 9

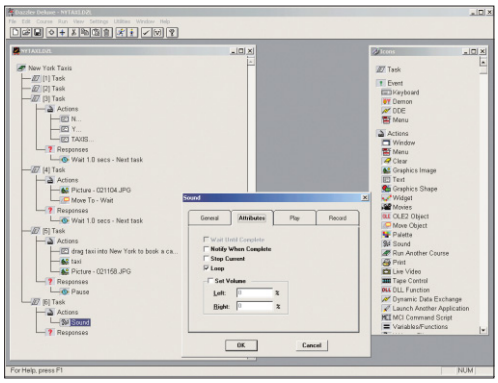
Add a third Text icon to place the word 'TAXIS', then add a one second pause as in step eight. Create a new Task, and drag a Graphics Image icon under the Action icon. I then choose a picture of a New York cab, and placed it so it was positioned off the Presentation window. I then added a Move icon, and set its parameters so the cab image animated onto the screen.

STEP 10

After adding a pause, create a new Task. This will let users drag a picture of the cab onto a picture on New York to enter the booking page. Add and place both images using the Graphics Image icon, and ensure the 'Stretch to fit' option is selected to scale the images so that they can be shrunk on the page. Finally, add a Pause icon under the Responses icon, and set it for one second.

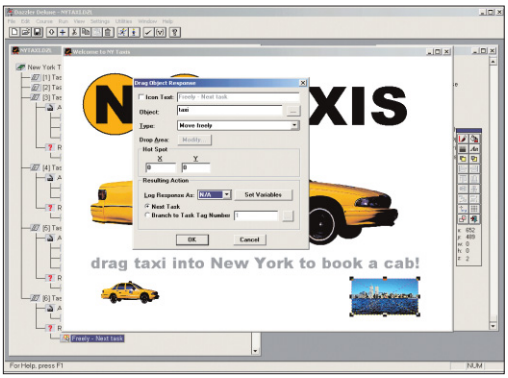
STEPS 11-16

STEP 11



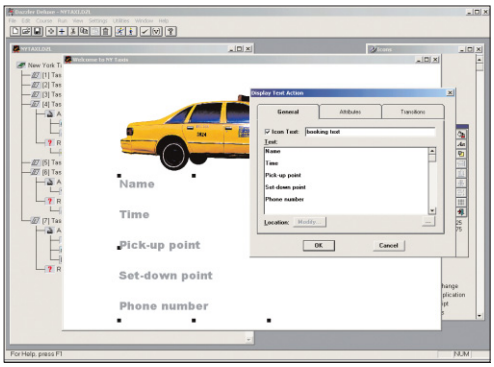
While the screen displays the 'Drag the taxi' call to action, we can play some music that repeats until the user completes the drag object request. Create a new Task, then drag a Sound icon to the Actions icon, and double-click. In the dialog box, locate a sound file (.wav), then set to Loop, found under the Attributes tab.

STEP 12



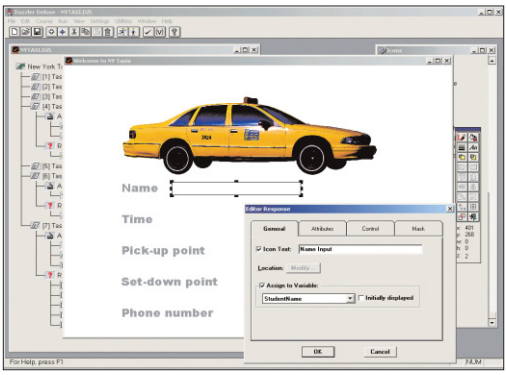
It's very easy to make an object into a draggable item. Simply add a Drag Object icon under the Response icon in the Course window, and double-click on it. In the dialog box, choose an object to make draggable – in this case, the small taxi image. Then, map out the Drop Area – the place we want the user to drop the object onto – using Drop Area: Modify.... Leave the Resulting Action as Next Task.

STEP 13



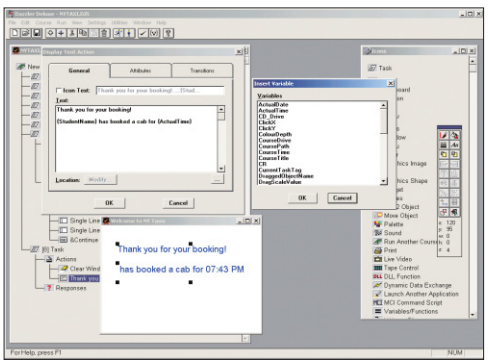
If the user successfully drags the object onto the Drop Area, a new page is created with booking requests. To do this, create a new Task, and then drag a Text icon under the Actions icon in the Course window. Double-click the Text icon, and enter some text into the dialog box, leaving space for the data fields. Once done, position it using the Location: Modify... button.

STEP 14



Under the Response icon in the Course Window, drag an Editor Response icon. Change the Icon Text to something like 'Name input' and check the 'Assign to Variable' box. From the pop-up menu under the check box, set the variable to 'StudentName'. You can create your own variables as you progress. Finally, use the Location: Define... button to drag out an area for the text field. Repeat for each of the text fields. Finally, add a Continue button.

STEP 15



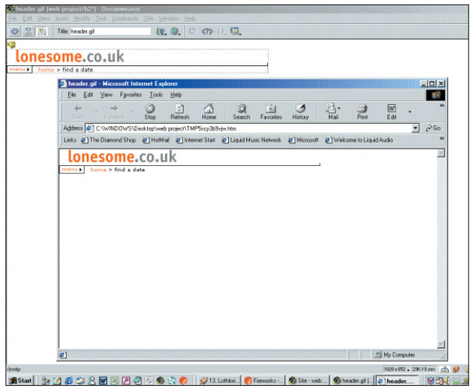
Create a new Task, placing a Clear icon under the Actions icon and setting it to 'Clear Window'. Next, place a Text icon under the Actions icon, and write some confirmation text. As you write the text, you can insert the variables created in the last step. To do this, press the '...' button in the Text icon dialog box, then select the variable you wish to insert.

STEP 16

To play the final result, press the Run icon in the top control bar. The project should play, the buttons should work, and the drag an object function will be operational. Once tested, you can package the entire file together (File>Package) and create a runtime version that can be exported for burning to CD.

FIREWORKS 4 AND DREAMWEAVER 4

By Ian Anderson



In this workshop, we'll create a navigation system for a fictitious online dating Web site called lonesome.com. We'll create a rollover button that triggers a DHTML menu, and see how Dreamweaver and Fireworks work together to implement a breadcrumb trail.

Ian Anderson is a freelance trainer for Corps Business and trains clients in Basic ASP, Dreamweaver, Flash, Fireworks, GoLive, JavaScript, and Photoshop. He also runs his own backroom design consultancy.

ian@zstudio.co.uk
www.zstudio.co.uk

Software

Macromedia Fireworks 4 & Dreamweaver 4

Hardware

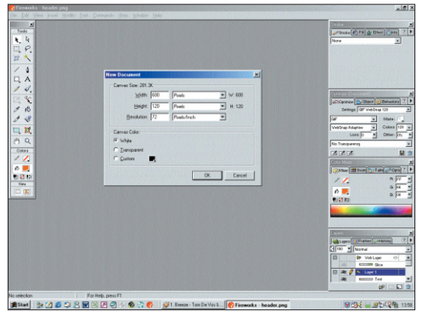
Windows and Mac OS

Contacts

corps business
delivering expertise

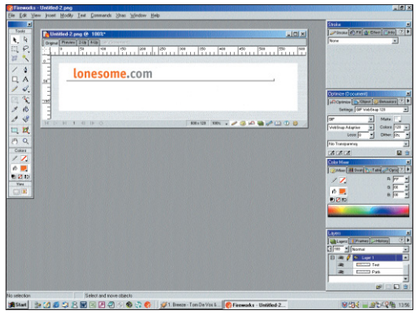
This workshop was created by Corps Business. Since 1989 Corps Business has built and maintained an excellent reputation as a reliable and professional training, recruitment, and new-media consultancy. The three departments work and support each other closely, enabling a complete new-media solution. Corps Business, www.corps.co.uk

STEP 1



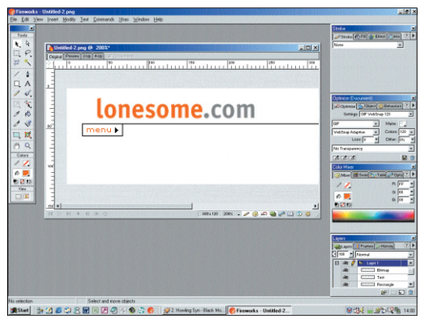
You'll need to have Dreamweaver 4, Fireworks 4 and a browser – preferably Internet Explorer 4.0 or better, if you want to follow the steps yourself. To start with, launch Fireworks 4 and choose File>New to create a new document with the settings: width 600; height 120; resolution 72dpi; canvas colour white.

STEP 2



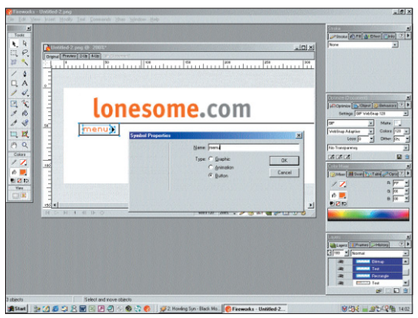
Using the Text tool, create a new text item containing 'lonesome .com' and format it: I'm using ITC Officina Sans Bold 34pt, and the colours #FF6600 and #666666. Use the pen tool with the Shift key held down to draw the line underneath. Use the Stroke panel to set the line attributes to Pencil – one pixel hard – with the same colours I do, as they match those in a style sheet which we'll use later on.

STEP 3



Next, we'll create the artwork for the rollover button. Draw a rectangle with a one-pixel black stroke and a white fill, positioning it over the start of your line. Next, create a text item containing the word 'menu'. Use Verdana 10pt with no anitaliasing, and the same orange. Choose File>Import to place the file 'arrows.gif'.

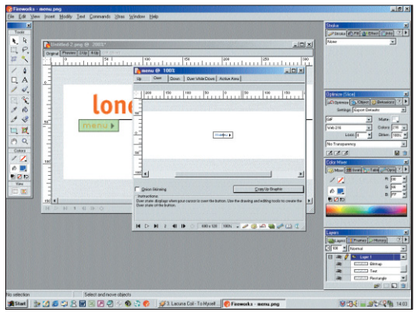
STEP 4



We're now going to turn the artwork into a button symbol within Fireworks. Carefully select just the box, menu text, and arrow, then press F8 to bring up the Symbol Properties dialog. Choose Type Button, and name it 'menu'. Press OK.

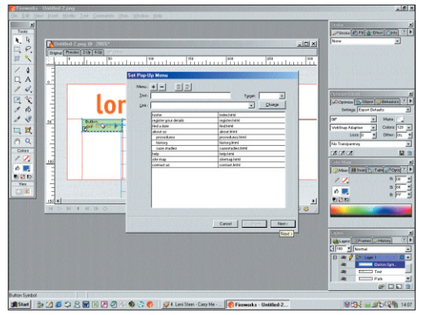
STEPS 5-10

STEP 5



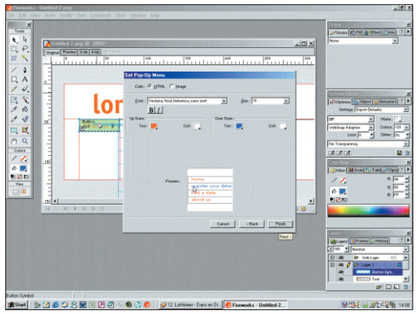
To add a rollover state to the button symbol we just created, double-click it with the solid pointer tool. This opens up the symbol editing window. Go to the over state by clicking its tab, then press the Copy Up Graphic button. We'll change the text's colour to a light blue – #0066FF. Close the symbol window once you're done.

STEP 6



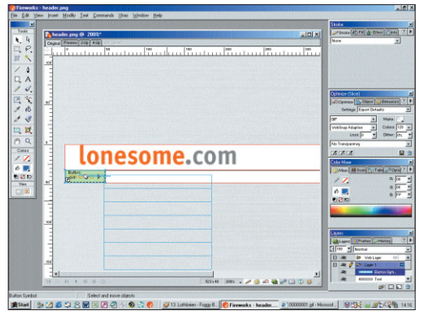
We're now going to add the popup menu – a new feature in FW4. It's supported by IE or Navigator 4.x, and you have the option of using text or images for the menu items. Select the menu button and choose Insert>Pop-up Menu. Add items one at a time, inserting links as necessary. You can indent menu items to create sub-menus.

STEP 7



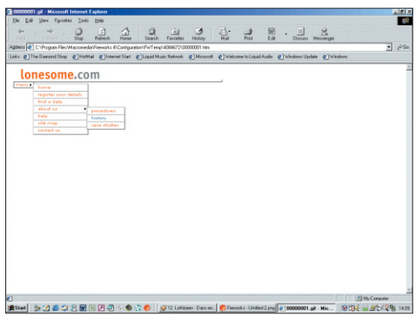
When you're through adding items, choose Next. This displays the formatting dialog, where we're going to choose Cells: HTML; Font: Verdana, Arial, Helvetica; Up State Text: #FF6600, Cell: white; Over State Text: #0066FF, Cell: white. Using white for the cells prevents a rather nasty bevelled edge from appearing. When you've set the attributes, click Finish to return to the document in Fireworks.

STEP 8



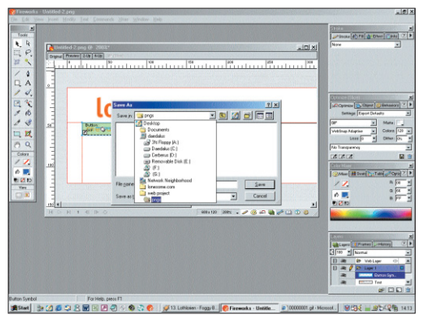
Unless you're going to use the stuff we build here right up in the top left corner of the browser window, the menu position and the position of the artwork won't match up when the page is viewed. Expect to have to use trial and error to get the menu in the right place. For now, position the menu where you want it beside the button. To crop the document, choose Modify>Trim Canvas.

STEP 9



Press F12 to launch your default browser and view the work so far. Fireworks exports your HTML and graphics into a temporary folder. In a real site, you can't use only this sort of dynamic HTML; you'd need to add a link to a site map page for older browsers. In this case, we're going to supplement our menu with a breadcrumb trail.

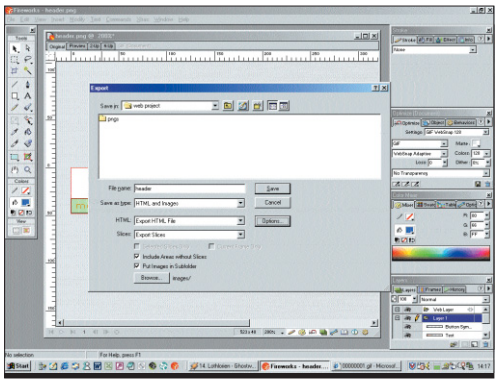
STEP 10



At this point, we're going to start implementing the physical structure of the site. Choose File>Save, and create a folder on your desktop called 'Web project'; this will be the site folder for all the graphics and HTML files. Inside it create a folder called 'pngs', and save your document in here as 'header.png'.

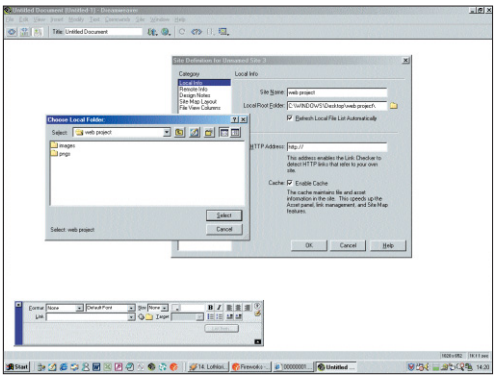
STEPS 11-16

STEP 11



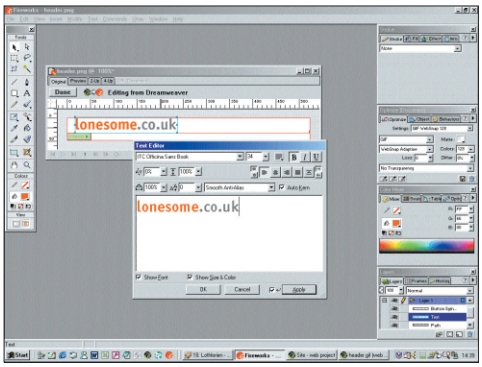
It's important to have saved your original document before you export your artwork to Dreamweaver, as information about the original is saved into the HTML that Dreamweaver is going to use. Choose File>Export to bring up the Export Options dialog. Browse to the site folder, and check the Put Images in Subfolder box. Click Save to export the HTML, GIFs, and JavaScript from Fireworks.

STEP 12



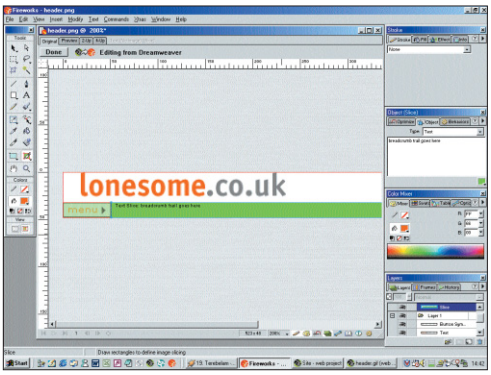
Although the physical folder has been created, Dreamweaver doesn't know anything about it. In Dreamweaver, choose Site>New site to bring up the Site Definition dialog. Name the site, then click the button for Local Root Folder to browse to the desktop. On the Mac, highlight the 'Web project' folder and choose Select. On the PC, go into the 'Web project' folder and then choose Select.

STEP 13



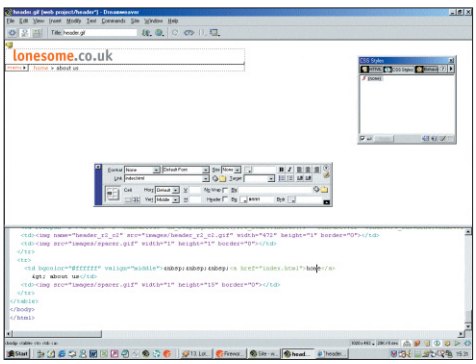
Open the file 'header.htm' from the Dreamweaver site window by double-clicking it, and select the table by clicking on its border. Check the Properties palette – it should say 'Fireworks table'. Select one of the images in the table, and the Properties palette should show an Edit button with a Fireworks icon. Select the table again and browse to the PNG file. This should allow Dreamweaver to edit the PNG in Fireworks automatically.

STEP 14



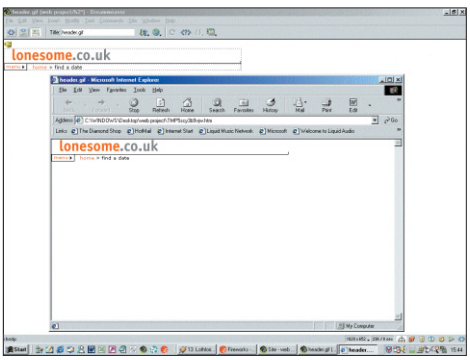
Select any Fireworks element and choose Edit in the Properties palette. You should find yourself in the original PNG window; make any changes, then choose Done. Try it a couple of times. Now, edit in Fireworks once more, and draw a slice object below the horizontal line from the button to the right edge. In the Object panel, change the Type menu from Image to Text. In the box, type something and choose Done to return to Dreamweaver.

STEP 15



Now we need to link to a style sheet to format the text. Copy the 'styles.css' file into your site folder, then choose Window>CSS Styles in Dreamweaver. In the CSS Styles panel, click Attach Style Sheet, and choose 'styles.css'. Fireworks can preserve most changes made to the HTML. To demonstrate this, type 'home>find a date' over the text you entered, and link the word 'home'. This is called a breadcrumb trail. Finally, vertically align the text to middle.

STEP 16



Preview the page in Internet Explorer 4.x, and you should see that the link on home looks like the links in the menu. On each page, you can change the breadcrumb trail text to reflect the user's current location. To edit the original artwork, use the Edit button, and the shared graphics will be updated across the site, provided you don't change the layout too much.

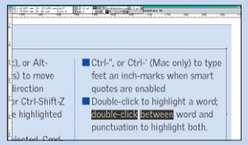
Design solutions

Tip of the month

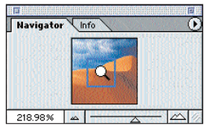
QuarkXPress keyboard shortcuts

All the main keyboard shortcuts for QuarkXPress are widely known. There are, however, a few lesser known keystrokes that may well make your life easier:

- Cmd-Opt-zero (Mac), or Ctrl-Alt-zero (Windows) to fit largest spread in window
- Opt-arrow keys (Mac), or Alt-arrow keys (Windows) to move item 1/10 pt in that direction
- Cmd-Shift-Z (Mac), or Ctrl-Shift-Z (Windows) to change highlighted text to Dingbats
- When Item tool is selected, Cmd- (Mac), or Ctrl- (Windows) click on an object to open Modify dialog
- Ctrl-", or Ctrl-' (Mac only) to type feet and inch-marks when smart quotes are enabled
- Double-click to highlight a word; double-click between word and punctuation to highlight both.



Multimedia



Quickly zoom in on any part of your image with Adobe Photoshop's Navigator.

FreeHand redraw

Macromedia FreeHand 9 does not display pasted-inside information in keyline mode. This can lead to some slow screen redraw times. To turn off these full redraws and speed up your workflow, locate and open FreeHand's preferences file on your hard disk (not from within the program). Change '(Draw ContentsInKeyline)(Yes)' to (DrawContentsInKeyline) (No)'. The file *must* be saved as text only. Restart FreeHand, and you won't see pasted-inside information onscreen any more.

Win a Digit T-shirt

Send us a tip that's worthy of publication and we'll send you a limited edition *Digit* T-Shirt! Send tips to dialogbox@digitmag.co.uk Please note that personal correspondence cannot be entered in to.

Manual tracking

Discreet Effect can track objects automatically, but it may be necessary to switch to manual control if the tracker loses its reference point. When this happens, click Pause in the Tracker palette. Press Backspace to get rid of bad tracker points, moving back to the exact point where the glitch occurred.

Reduce the tracker's tolerance until the crosshair vanishes, then navigate to the next frame where the reference point can be seen. Drag the tracker box over the point, go to the next frame along, and then manually re-position the tracker. The tracker will work out its next position based on the points you set manually. Finally, click Analyze at the beginning of the clip to interpolate.

Render qualities

Apple Final Cut Pro saves render qualities in each project. To create a global set of RQ, open a new project and choose Edit>Project Properties. Now open this empty project and press Shift-Y to open the RQ Editor. Select Save as Default Set, and your preferred RQs will now be applied to each new project.

Shadows in Poser

Curious Labs Poser can sometimes render rather blotchy shadows, especially in the face camera. To avoid this, increase the Shadow Size for each light to its maximum value. You can find the Shadow Size dial in the parameters displayed when you select any of the lights. This will slow down your rendering slightly, but will produce much smoother shadows.

Textures in Boris Graffiti

All the shapes in Graffiti, with the exception of Background, let you map independent files to their surfaces, crop and rotate these images, rotate them in 3D space, and even apply shadows and lighting effects. To map an image to a shape, expand its track in the timeline. Make sure the track's Multi/Single Input icon is set to Multi Input mode. Next, click the Media icon for the relevant face of the shape, and choose Still Image File from the menu. Select the file to automatically update the image in the Composite window.

Widescreen Premiere

To simulate the letterbox style of cinema movies in Adobe Premiere, you can use one of two methods. The first is to use colour mattes: create a matte in the colour you want to use for your letterbox, and place it on your video track. Select it, and choose Clip>Video Options>Motion. Move the matte's beginning and end points to the same position, such that it covers the top of the screen in the way you want. Repeat this for another matte at the bottom of the screen, then render.

Alternatively, you can uncheck the 4/3 aspect ratio box. Bare in mind that the first method will cause material to be lost from the top and bottom of the screen, unless the footage was shot in widescreen in the first place.

Raytracing in Real 3D

Very small or thin objects in Real3D may not show up when raytracing images due to aliasing problems. Increasing the image's resolution can go some way to solving this issue: reducing an image's size from, say, 1,500-x-1,500 pixels to 800-x-800 pixels will increase the quality – but also the rendering time. Using depth of field will also help, softening badly aliased pixels.

Tunnels in LightWave

Tunnel scenes often follow a standard format: a light at the far end, and one immediately in front of the camera, which fades to black a short distance up the tunnel. To do this in NewTek LightWave, use Light Intensity Falloff or Black Fog. Lower the maximum for amount to around 40 to 60 per cent, and move the light source in front of the camera. Give it a low Intensity Falloff – say, two per cent.

Graphic design

Photoshop Navigator

Adobe Photoshop's Navigator palette can be used for more than just scrubbing around an image. Hold down Ctrl (Windows), or Cmd (Mac) and drag across the thumbnail sees it zoom in on the area selected. Cmd/Ctrl clicking on the thumbnail just once will zoom in to the full magnification of 1,600 per cent.

Quark's measurements

When changing an item's coordinates or measurements in QuarkXPress, pressing Cmd-Opt-M (Mac), or Ctrl-Alt-M (Windows) will take you directly into the Measurements palette without the need for making a trip to the mouse. Press Tab to cycle through the available values, including leading, tracking, number of columns, rotation, font, and type size.

On the level in Illustrator

It's hard – if not impossible – to scale a rotated object in Adobe Illustrator. Rotate plus scale is the same as skewing, meaning that the object will never simply scale – it will distort as well. To get around this, it's necessary to redefine what Illustrator sees as its horizontal datum. Press Cmd-K (Mac), or Ctrl-K (Windows) to access the preferences dialog, and change the Constrain Angle to the same value as that which the object was rotated by (you can see this in the info palette). The object can now be scaled as normal. Beware, though: every object added subsequently will be drawn at this angle – so when you've scaled the object, be sure to reset the Constrain Angle value to 0 degrees.

Fractions in InDesign

Adobe InDesign has a few tricks up its sleeve when it comes to building fractions over and above the standard set included with fonts. The key point to remember is that the bottom half of the fraction has to sit on the baseline. Therefore, only the top half is moved. Shift-Opt-Up Arrow (Mac), or Shift-Alt-Up Arrow (Windows) will baseline shift the numerator up by 2pt at a time by default. The next step is to use a special fraction character for the slash. On a Mac, this is accessed with Shift-Opt-1. On a PC, only InDesign can access it – select Type>Insert/Replace Character, choose the special character (not a regular slash), and click Replace, then Done. Finally, increase the size of this special character with Cmd-Shift-period (Mac), or Ctrl-Shift-period (Windows).

Adobe Photoshop

Put your work in the fast lane: motion blur

There are numerous ways to create motion blur in Adobe Photoshop. One is to manually draw in blur lines with the smudge tool – but this can be time consuming, and often yields less-than-satisfactory results. A more versatile method is to use filters and layer masks.

Layer it down

We're going to apply blur to this bike. We need to be careful, however, not to affect the background; just the area immediately behind the bike. The first step is to duplicate this layer. Making sure the duplicate is selected, choose Filter>Blur>Motion Blur. Since most of the image will be masked, you can use liberal amounts. Be sure to match the blur's angle to that of the bike's direction.

Now, add a layer mask, and use a variety of paintbrush sizes, weights, and opacities to restore everything apart from the rear of the bike to the original background image.

Finally, to give the front of our bike more definition, use the Unsharp Mask filter on the background layer.

Web design

Flash cubed

Some Macintosh G4 Cube owners have complained that Macromedia Flash 5 crashes their machine when playing streamed sounds. According to Macromedia and Apple, there seems to be a conflict between Virtual Memory, the Sound Manager, and the Cube's native code. They suggest the following workaround: download the Flash 5.0a update, and disable Virtual Memory or disconnect the USB speakers. Restart the Cube, and then give Flash more memory.

Multiple layout cells

By default, Macromedia Dreamweaver 4.0's Draw Layout Cell tool becomes inactive after a layout cell has been drawn. If you're drawing lots of cells, you have to select the tool each time. To force Dreamweaver to keep the tool active, hold down Ctrl, (Windows) or Cmd (Mac) as you draw your cells.

Adobe GoLive frames

To quickly define a content page for a frame in your Adobe GoLive Web site design, Cmd-drag (Mac), or Ctrl-drag (Windows) from the frame to the chosen page.

Generator templates

You may want an 'Update' button for, say, chat room refreshes or instant feedback on user changes in a Generator template within a Flash movie. For the template to update, however, a request needs to be sent from the browser to the Generator server to refresh the template. To add this, publish the .swf template from Flash, and upload it to your Web server, calling it something like 'template.swf'. Next, create the .swf file containing all static elements such as text, buttons and so on. Call it 'static.swf'. On the first frame of this latter movie, add a Load Movie action. In this action's URL parameter, add the path to the 'template.swf' file, and set all the other parameters as you want them. In the 'static.swf' file, add the Update button instance, and apply the same Load Movie action to it. When clicked, button will send the http request to the generator server, and the template will be refreshed.

HomeSite shortcuts

Allaire HomeSite has a number of useful keyboard shortcuts for dealing with HTML tags. Insert a **<b>** tag with Ctrl-B; a **
** tag with Ctrl-Shift-B; an **<i>** tag with Ctrl-i; and a **<p>** tag with Ctrl-Shift-p. Especially useful are the opening **<>** and closing **</>** angle brackets, which can be inserted with Ctrl-comma and Ctrl-period respectively.

Sliced rollovers

Be careful when creating rollovers using slices in Adobe ImageReady. If any portion of the image goes outside the selected slice area, ImageReady has to create more images in the HTML code, resulting in longer download times.

Design solutions: interactive Web

General interactivity

GifBuilder frames

Both GIF Animator and GifBuilder accept layered Photoshop files. Any image information outside of the visible layer frame can cause problems when importing into GifBuilder. Before importing layered Photoshop files into your GIF animation program, choose Select>All and Image>Crop, which will trim off any image that extends outside the Photoshop layer frame.

Linking Web animations

Every Web designer knows that the HTML tag lets you download a low-resolution version of an image, which is then replaced by a high-resolution one that downloads in the background. The same trick works with animated GIFs. For example, load intro1.gif first, which is then replaced automatically by intro2.gif when it's downloaded. This is ideal for the opening scene of an animation that seamlessly downloads the second scene in the background. However, note that Microsoft Internet Explorer doesn't support this trick.

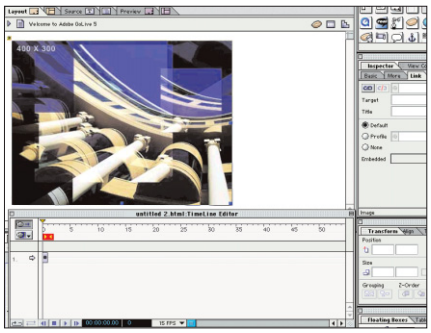
Fade out images

An easy way to fade out an image in your animation, is to take the image into a bitmap editor. Use a spray paint tool or airbrush. Set it to hard settings with no transparency. You want it to paint random dots of a specific colour. Select the colour that will be your transparent colour. Paint some random dots on the image. Save as a frame. Paint some more. Save as a frame. Continue until there's nothing left of the image. When sequenced in the GIF, this will look like the image is disintegrating or, if in reverse, materializing.

Loop the loop

Avoid endlessly looping animations. Most visitors to your site don't want to see your animation more than 20 times. The constant activity of animations on a Web site is distracting and can have a negative impact on multitasking on low-end machines. Insert a five second (or more) delay between loops and end the animation after a good number of iterations.

Image links in GoLive



It's easy to set up a slideshow of images in Adobe GoLive with links to other pages. First, put each image in a floating box, and link the image to the page. Then situate one of the floating boxes on the page where you want it to go. Copy the 'Top' and 'Left' coordinates in the Inspector from that FB to the other two, so that they are all in the exact same place.

Open the Timeline editor by clicking the movie film icon at the top left of the page. Next, copy the time marker in time track 2 to 5. (Opt-drag for Mac, Alt-drag for Windows), then copy the time marker in time track 3 to 10.

Add a third time marker to time track 3 at 15. Turn off the visibility on the first time markers in time tracks 2 & 3. and press Loop. Finally, select the 'Frames per second' value that works best for you.

All-in-one DHTML pages

With a little clever coding you can build all-in-one pages that contain DHTML animation, but also include HTML so that older browsers can display it correctly.

The secret is to use the HTML table layout. First, lay out the elements of your page with tables, as you normally would for a 3.0 browser. Then you surround each element (text or graphic) you want to animate with a **<DIV>** or **<SPAN>** tag that includes CSS-P positioning coordinates and z-index (layer) information.

There are a couple of points to take into consideration with the **<DIV>** and **<SPAN>** tags. First, it's probably better to use a **<SPAN>** tag because the **<DIV>** contains a paragraph return, which can push table elements apart and second, if you need to align the object, the **<DIV>** or **<SPAN>** tag will override the alignment set in the **<TD>** tag. However, the alignment doesn't seem to affect the actual DHTML animation.

Finally, you must write the JavaScript needed to animate these elements. The only restriction is that at the end of the animation, all the elements need to be in the same places on the page where they're located in the tables.

For 4.0 browsers, the DHTML code takes precedence over HTML code, so the browser runs the animation and ignores the tables. Older browsers don't recognize the DHTML code, and instead read the HTML table code. This approach works with Netscape 3.0, Internet Explorer 3.0, and AOL 3.0, as well as old browsers that don't understand JavaScript.

Adobe Photoshop 6.0 and ImageReady 3.0

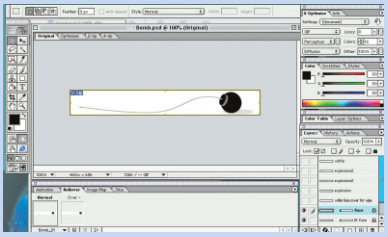
Shortcuts letters

A quick way to find out the shortcut letter for your favourite tool is to hold your mouse over the tool in question, until a tool tip pops up. This shows you the shortcut letter which can use to quickly select that tool in future.

Frame differences

Adobe ImageReady 2.0 performs frame differencing, which saves only the pixels that alter from frame to frame – but only if you tick the transparency option in the Optimize dialog box. If you don't, ImageReady performs a minimum bounding box optimization that crops motion frames to the pixels. A lossy GIF feature saves even more file size, so use that too.

Create rollovers



If, having created a GIF animation, you then want to make it a rollover, it's easy in Photoshop 6. With the animation document open, switch to the Rollover palette and click the tiny page icon to make a new Over state. There's your animated rollover.

Problem is, you have an animated base button. To solve that problem, click the Normal thumbnail. Switch to the Animation palette and delete all the frames but the first one. Now your base button is a stationary GIF image.

To make certain everything is still intact, return to the Rollover palette and click the Over thumbnail. Then go back to the Animation palette. Voila, there's your animation.

Choose File>Save Optimized to generate the base GIF button, animated GIF rollover, and all the necessary HTML code.

Platform issues

If you use an image map, give its layer an informative name – the name appears as a tooltip over the map when viewed in a browser on a PC.

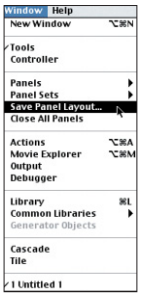
Macromedia Flash

Customizing panels

In the latest version of Flash, Macromedia replaced most of the dialog boxes, interface controls, and inspectors with floating panels. As panels take up a lot of space, it's a good idea to customize them. By default, Flash 5.0's most commonly used panels are grouped to the right of the document window. You can, however, change the size and grouping of each. To separate or reorder a particular panel, simply click and drag its name tab to your preferred location. To quickly show or hide all panels, hit the Tab key.

Working with panel sets

Panel sets let you keep a number of panel layouts to suit different tasks – be it scripting, animation, or graphic design.



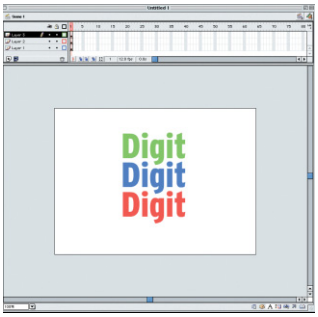
To create a panel set, open, position, and size the appropriate panels, then choose Save Panel Layout from the Window menu. Choose a name for the set and click OK. You can now access that set at any time from the Window>Panel Sets menu.

To remove a panel set, locate the Flash 5.0 folder on your hard disk. Choose the sub folder named Panel Sets to select and delete the unwanted set. To share panel sets with other users, simply place a copy of the set file into that person's Panel Sets folder.

Keyboard shortcuts

Flash 5.0 now has a powerful system of custom keyboard shortcuts, and is loaded with a variety of common setups from programs such as Adobe Illustrator and Macromedia FreeHand. You can also create your own personal set of keyboard shortcuts by clicking Edit>Keyboard Shortcuts; the Customize Shortcuts dialog box will appear.

You can edit an existing set or create a new one. Once a set is selected, you can choose to customize the Drawing menu commands, drawing tools, or Test Movie menu commands. Select the command or tool you wish to customize. Then click the Add button to create a new shortcut, or click Change to alter the selected one. Then hit the key combination on the keyboard. Save the shortcut by clicking OK.



Timeline tweaks

Flash 5.0 introduced several new Timeline tweaks. Blank key frames no longer carry the small 'o' in them unless a script is attached to the frame. When you mouse over a frame, the hand gripper cursor will appear in place of the regular arrow pointer.

The new Timeline also has its own unique set of behaviours for moving frames, copying frames, and other tasks including object-highlighting. By default, each layer has its own colour that draws rectangular outlines around any objects on that layer. This can be useful for tracking objects over multiple layers – but experienced users may find the Technicolour effect more than a little irritating.

You can revert to the familiar Flash 4.0 Timeline style and tone down the colour of object selection, by editing Preferences. From the Timeline Options, check Flash 4.0 Selection Style and Flash 4.0 Frame Drawing. Then from the Highlight Colour section, click Use This Colour and select a colour.

Colour coding

ActionScript now more closely resembles JavaScript than its Flash 4.0 version, and the added complexity warrants the need for usability improvements. The new colour-coding feature in the Actions panel makes it easier to write, read, and troubleshoot scripts. To activate colour-coding, open the Actions panel and click the Reveal menu, selecting Coloured Syntax if it's unchecked. The colours will be displayed in both Normal and Expert modes.

Swapping symbols in Macromedia Flash

If you've built an animation in Flash 4.0 but need to swap out one graphic for another, it's easy to do if you've already made your graphic Flash Symbols.

Creating Symbols

To create a new Symbol in Flash 4.0, open the Library palette and from the Options drop down menu select New Symbol, or click the Plus button at the bottom of the Symbol palette. Choose either Graphic (for a static image), Button (if you're creating a button), or Movie Clip (for a looping animation).

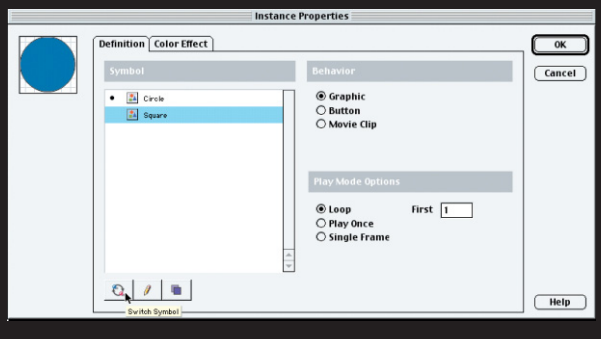
Draw away, or import clip art or other images. To get a Symbol into your current movie, drag it from the Library palette to the Stage. It will appear on the active layer.

Creating Symbols

To swap out a Symbol in your animation and replace it with another, select the Symbol's Instance on the Stage or Timeline by choosing Modify> Instance.

This will bring up the Instance properties dialog box. Click on the Definition tab. The Symbol from the Stage should be highlighted in the Symbol listing, and a thumbnail of the Symbol will appear next to it.

Select the Symbol you want to swap to the Stage in the symbol listing and hit Switch Symbol at the bottom of the Instance Properties dialog box. Click OK.



Playback of QTVR

For Flash-controlled playback of QTVR object movies, you need to add a Go to and Play action to the last frame of the scene, which loops back to the first frame of the scene. However, the QuickTime Player does not recognize a Flash Stop action on the first frame. To start a QTVR Flash movie in a paused state, select the Paused at Start option in the Playback section of the Export QuickTime dialog, or in the QuickTime tab of the Publish settings.

Random function

Make your Flash movies more interesting by using the *Random()* function – particularly relevant for developing games.

You can use the *Random()* function to Tell Target random movie clips, generating random effects and many other possibilities. The Random function in its simplest form would look like this:

Random(5) + 1

That action would generate a random number between 1 and 5. You may be wondering why we added the + 1 to that expression. This is because *Random()*, by default, starts at 0. If we left that + 1 off, the *Random()* function would generate a random number between 0 and 4.

The magic number

It's a little known fact that a Flash movie can have up to 16,000 frames. Exceeding that limit will cause the movie playback to stop. If your movie needs to have more than this many frames, it's best to create multiple movies with less than 16,000 frames each, and link them together with a

method such as Load Movie.
The magic number 16,000 is a limit to other things in Flash as well – the maximum amount of layers that Flash can export; the maximum number of loaded movies that Flash can support; and the maximum amount of symbol instances allowed in a Flash movie. Combining these limits together would most likely create problems, so in order to avoid memory and other operating system issues, don't push Flash to extreme file sizes.

External Script files

In Flash 5.0, the ActionScript *#include* directive lets you store scripts in external text files that can be drawn upon during export. This means that programmers can now edit script files while designers work on the .fla file.

To use an external script file, you select the frame or object you want to add the script to, open the Actions panel, and type in the existing script: *#include "filename.as"*
Never end the line with the evaluate (;) operator, because it yields an error. You can name your text files anything you like, but *.as* is the recommended extension, and denotes that the file contains ActionScript code.

Avoid syntax errors

To make sure you don't have any syntax errors after reorganizing code in Expert Mode, temporarily switch to Normal Mode. Flash will alert you if there are scripting errors, and won't let you enter Normal Mode until the error(s) has been fixed.

Flash cursor movement

If you want an object in a Flash movie to 'stick' to the mouse cursor, here's how to do it:

Insert a new symbol, naming it 'cursor'. Make sure the Movie Clip button is selected in the dialog box. Put your symbol in the work area, and centre it on the crosshair, then go back to the scene view. Select Window>Library, and drag the cursor clip onto the Stage.

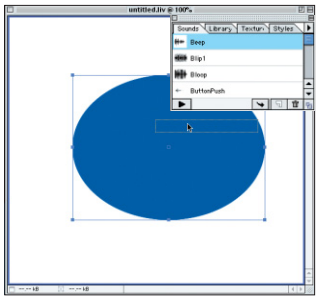
Select Modify>Instance, and name the object cursor. Click OK. Next, choose Modify>Frame>Actions, and add a new action to the keyframe by clicking the + symbol in the dialog box. Select Start Drag from the popup menu, click the target box and type cursor, making sure the Lock Mouse to Centre option is checked. Click OK, and test your movie.

ActionScript commands

if you use the plus (+) menu to access ActionScript commands, you'll notice that shortcut keys are defined after the name of the command. You can use the shortcuts in either Normal or Expert Mode. For example, *loadMovie* has a keyboard shortcut of Esc+lm.

If you give the Action Panel focus and press Esc+lm, then the *loadMovie* action will appear in the Actions list, complete with placeholders for arguments.

Adobe LiveMotion



Using sound in rollovers

Adobe LiveMotion allows you to link sounds with particular objects – or states of that object. This can be particularly useful when creating rollovers; separate sounds can be associated with the different states of the button.

When you've created your object (make at least one state something other than Normal), click the state that you wish to be linked with a sound. You can drag the sound onto the object from the Sounds palette, click Apply, or press Return to do this. Repeat these steps for any other states. Sometimes, a sound may not be present in the palette. In this case, select the rollover state, and click Add Sound at the bottom of the Rollover palette. You can now import the sound you want and attach it.

Quick object selection

Adobe LiveMotion has a few quick tricks up its sleeve when selecting objects. Pressing Cmd-Shift-] (Mac) or Ctrl-Shift-] (Windows) will bring an object to the front. Cmd-] (Mac) or Ctrl-] (Windows) will bring it forward one level in the stack. The opposite square bracket key used in the same respective combinations will move the object to the back, or back one level.

Grouping objects

Like Adobe Illustrator, LiveMotion allows you to group objects on different layers and adjust their size, shape, opacity and so on as one object. Unlike Illustrator, however, the separate elements in the group aren't all bundled into one layer; they remain on their separate layers, allowing them to be edited individually if need be. Additionally, object layers will remain associated to their parent object even when it is grouped or ungrouped with other objects – and they will still retain any layer effects and attributes applied to them.

Opacity differences

Remember that Object Opacity and Layer Opacity are not the same in LiveMotion. In simple rollovers involving regular, non-time-independent animations, the Layer opacity can change between object states. The Object Opacity cannot.

Naming a group

When you create a time-independent group, your object (or group of objects) will be renamed 'Group of x Objects.' You can give the group your own name by selecting it in the Composition Timeline and going to the Timeline menu, selecting Edit Name.

Quick moves

To make an object appear in a completely different position, such as the other side of the screen, without any 'in between' animation, just make sure there's only a single frame between the two points in the animation. The alternative is to keyframe your object around the outside of the screen, which is just too much work and causes curve problems when your positioning is in bézier mode.

Importing objects into LiveMotion

The data type of imported objects – whether they're vector or bitmap files – depends on how they were created and how they come into LiveMotion.

■ Place
Placed objects retain the data type of the original file. One exception is text from Adobe Illustrator. Unless the text is converted to paths in Illustrator before being placed, it will come into LiveMotion as a bitmap object.

■ Place Sequence
Selecting this places a numbered sequence of files as an animated object. Like placed files, these objects don't change data types.

■ Place as Texture
This places an object as a tiled background or fill. Bitmap or vector objects can be used as textures. Again, objects don't change data types.

■ Import
When you import an object from a scanner using TWAIN, it's always a bitmap and comes into LiveMotion as such.

In Mac OS, you can also import PICT resources or object-oriented PICTs as anti-aliased bitmaps. Both come into LiveMotion as bitmap objects.

■ Copy-&-pasting
This copies an object from one application and pastes it into LiveMotion. Similar to the Place function with the same exception of text objects from Illustrator. Another exception is that paths in Photoshop cannot be copied and pasted successfully into LiveMotion – these come in only as a bounding box.

■ Drag-&-dropping
Uses the drag-&-drop feature to move an object from one open application to LiveMotion. This is similar to copying and pasting.

Professional compact cameras

They're never going to replace film at the high-end of the market – but in this fast-moving world a top-notch digital camera may give you the edge you need.

By Neil Bennett

Digital cameras tested

- Canon PowerShot G1
- Canon PowerShot Pro90 IS
- Epson 3000Z
- Fuijfilm FinePix 6800 Zoom
- Kodak DC 4800
- Nikon Coolpix 880
- Olympus C-3040
- Ricoh RDC-7
- Sony Cyber-shot DSC-P1
- Sony Cyber-shot DSC F505V

When it comes to choosing a digital camera that's capable of producing professional-quality results, there are three main model types. The most common type of digital camera is the compact. This model of camera places all of the components in a single body with non-interchangable lenses. These cameras generally cost around £600 or £700 plus VAT.

Some manufacturers also offer models that bolt an unwieldy-looking zoom lens onto the front of their compact models – such as the Fujifilm FinePix 4900 with its 6x zoom lens and Canon's PowerShot Pro90 IS, which features a 10x zoom lens. These zoom lenses add quite a lot to the price with the 4900 costing £800 and the Canon £1,100. Finally, there's digital SLR cameras, which play by their own rules and at their own price point – and will be covered in a separate round-up later this year.

Components

A digital camera body is basically the same as a conventional film camera. At this price point however, whereas a film-based SLR will allow you to change lenses, a digital compact camera has a fixed lens. As with film cameras, digital compacts let you set shutter speeds and apertures in fractions of seconds and f-stops respectively. All of the models featured here also have optical zoom lens, which offers up to 3x zoom on most compact models (equivalent to 35-105mm on a 35mm film camera). Two of the cameras tested here extend this to either 6x or 10x zoom – which provides superior picture quality at more than a few feet but these zooms are bulky and add heavily to the price.

A digital camera's capture electronics are based around the CCD (charged coupled device). All of the compact cameras covered here use a 3.34 megapixel CCD, which allows you to capture images at resolutions of up to 2,048-x-1,536 – except for the Kodak DC4800, which uses a more widescreen 3.1mp CCD to capture at 2,160-x-1,440.

Some of the cameras claim to offer resolutions greater than this, with the Ricoh RDC-7 claiming 7mp pixel results (3,072-x-2,304). This is the result of the camera applying interpolating techniques and the end results often fail the grade. The Ricoh camera performs best here, using two versions of the image to work out the interpolation (just don't use it on moving subjects). Poor picture quality is also true for the cameras' digital zoom facilities, which also use interpolation to boost depth.

Although one of the zoom cameras has a 3.34 megapixel CCD, the scale of the lens means that only 2.6 megapixels are in use – giving the Canon PowerShot Pro90 a maximum resolution of 1,856-x-1,392. The other zoom cameras tested here, the Fujifilm FinePix 4900, only has a 2.47mp CCD but makes the most of it to deliver a 1,600-x-1,200 maximum resolution.

Audio and video

As well as taking still images most of the units featured here can also record short video clips – although professionals aren't going to get much from the tiny, low-resolution clips. The ability to add short audio notes to shots, Dictaphone style, can be more useful.

Other features to look at when deciding on a digital camera include the presence of an optical viewfinder – as this helps reduce the strain on the camera's battery and is a must for taking pictures in bright sunlight – and support for an external flash through a shoe. You should also consider the type of storage media it uses. With storage media, there's little true difference between CompactFlash, SmartMedia and MemoryStick (they're all expensive for not much space), except that CompactFlash slots can also take IBM's Microdrive. The Microdrive can hold far more than any of the standard formats (up to 1GB) but be aware they're very expensive. It's also a good idea to physically handle the camera before buying to check how it sits in your hand and how comfortable you will be holding it.

One extra note: the highest-rated camera from the last round up, Nikon's CoolPix 990, has been discontinued. However, the company has not as yet announced a replacement.

Canon PowerShot G1

Digit BUY 4.5

Price: £680 plus VAT
Company: Canon, *0800 680 8062*
www.canon.co.uk

The Canon PowerShot G1 is a solid-feeling, somewhat heavy digital compact camera. It certainly can put up with more knocks and bumps than most – but the extra 100g it has on most other models in this group test makes it a pain to carry around. Apart from this small gripe, the G1 is one of the best cameras. It's got a full set of features, a great lens and true external flash support – all of which make it stand out from the crowd.

The G1 is based around a high-quality, high-definition 3x zoom len that also accommodates standard Canon accessories. The lens has a maximum aperture of f/2 at the wide-angle setting, and a manual focus button plus full auto control. There's also a macro mode, which can get down to 6cm and can be lowered further using a close-up adaptor.

The lens is complemented by the 3.34mp CCD that delivers the standard 2,048-x-1,536 without bothering to add irrelevant interpolated detail. Output image quality is top notch, equal to the Camedia 3040Z, with reproduction of bright, saturated colours being particularly impressive.

Other impressive specs include continuous shooting with only 1.8 seconds between shots, the ability to attach a Speedlite flash to the hot shoe on the camera's top, and an LCD display that can be twisted into any position you wish. There's also an optical viewfinder for bright, outdoor shots.

Canon PowerShot Pro90 IS

Digit BUY 4.5

Price: £1,099 plus VAT
Company: Canon, *0800 680 8062*
www.canon.co.uk

The Pro90 IS has a whoppingly huge 10x zoom lens, but despite having a full-spec 3.34mp CCD, this cone-shaped lens only allows light to hit 2.58 million of them. The result is a resolution of 1,856-x-1,392 – just a little more than rival zoom camera FinePix 4900, which offers a top resolution of 1,600-x-1,200 on a 6x lens.

The best thing about the Pro90 is its Image Stabilizer (IS) system, which cancels out the wobble of the human hand. This becomes more important the slower your shutter speed and works by rapidly moving the lens inwards. It doesn't seem like much until you turn it off, when things get blurrier than a night out with George Best.

Not so impressive, though, is the sluggish autofocus and shutter button. Even with the focus pre-set, the shutter takes so long to fire that it can miss quite a few of the shots that 10x cameras are designed for, such as action sports shots. The sensitivity range also only goes from 50 to 400 ISO, which is good compared with compacts, but not so hot in a camera which approaches SLR level in cost.

These problems are a shame, as the rest of the camera is well designed. It includes the same LCD-in-any-angle design as the G1, a hot shoe and even includes an LCD-based viewfinder.

Epson PhotoPC 3000

3.5

Price: £680 plus VAT
Company: Epson, *0800 289 622*
www.epson.co.uk

The Epson PhotoPC 3000 is the only camera that hasn't been updated since our last digital compact camera round-up last year – and it's beginning to show its age. Although the picture quality is still good, results are not as sharp as the Nikon Coolpix 880, the Olympus Camedia 3040Z or the Canon PowerShot G1.

The camera offers a standard 3x zoom lens with a 3.34megapixel CCD. It can boost the image size from 2,048-x-1,536 to 2,544-x-1,904, but the resulting image quality is worse than if you did it in Adobe Photoshop. It's a good thing that the digital zoom stops at 2x as well. However, it has an impressive maximum aperture rating of f/2, a maximum shutter speed of 1/200th second and it can go up the ISO rating scale to 800, which matches the best of the cameras tested here.

Although heavier than most of the other cameras, the rest of the Epson feature set is pretty average. For example, it offers macro mode with a minimum shooting distance of 20cm and four flash modes. It gets worse. While it offers a hot shoe for attaching a flash – the camera can't control it. Also, the panorama mode is a misnomer – it just chops the top and bottom off shots to make them panorama shapes.

The PhotoPC 3000 also doesn't bother with a video capture mode, which is no great loss. The camera has some good points but needs an update to boost the overall picture quality.

FinePix 4900 Zoom

Best Digit BUY 4.5

Price: £799 plus VAT
Company: Fujifilm, *020 7586 5900*
www.fujifilm.co.uk

The 4900 Zoom may look like a true SLR but the viewfinder actually contains a small LCD screen with a lower resolution than the one on the back. It's better than an offset optical viewfinder though, as the main reason to buy the 4900 is for the 6x zoom lens.

Although the 6x zoom lens makes the 4900 look snub-nosed and ugly, it provides overall good image quality despite a slight problem with softness and multicoloured noise in neutral greys. Other good features include buttons for automatically selecting functions that are easy to memorize and find in a hurry, a macro mode to 10cm (very low for a zoom-based camera) and a very light weight (480g) – especially when compared to the Pro90 IS at 680g.

The 4900 is well-conceived camera. Evidence of this includes two sets of zoom buttons – one on the front for use when holding the viewfinder to your eye and one on the back for use with the LCD-screen. Even the standard movie function has been improved on, as you can actually play captured movies back on the camera.

There's also a wide range of manual controls, with apertures ranging from f/2.8 to 11 in 1/3 stop increments and the only support for the ISO 800 light sensitivity setting on show here. The camera is polished off with a low-powered pop-up flash, which can easily be replaced with a external flashgun through a hot shoe (although there's no exposure interface).

Kodak DC4800

3.5

Price: £595 plus VAT
Company: Kodak, *0870 243 0270*
www.kodak.co.uk

There's no point being unconventional if your methods aren't any better than the competition – and this is just the trap that Kodak has fallen into with the DC4800. Most cameras tested here use the Sony 3.34mp CCD, but Kodak uses its own 3.1mp device and it's just not as good as the Sony one – and it delivers a much noiser picture from Kodak's own standard lens.

The DC4800 also tries to be different by offering a minimum of options, which are accessed through dedicated control dials and options. For example, there are only three aperture settings on the camera (f/2.8, f/5.6 and f/8). The logic behind this is that most of the time users need quick pictures and don't have time to go through hundreds of menu settings – but it's professional who users are going to find this lack of control highly irritating.

Where the dedicated buttons do succeed is for things like the self-timer/multi-exposure control, the macro mode (which can go as low as 2cm) and flash. These are things that you do need in a hurry and they're very easy to get to.

What also lets the DC4800 down is its LCD screen, particularly as there's no optical viewfinder. The display is extremely grainy, especially under artificial light and the icon-based menu system is hard to read on this screen.

Nikon Coolpix 880

Best Digit BUY 4.5

Price: £595 plus VAT
Company: Nikon, *020 8541 4440*
www.nikon.co.uk

The Nikon Coolpix 880 was designed to complement the Coolpix 990, the top camera in last year's round-up which has since been discontinued ready, we expect, for an announcement of its replacement soon. The 880 takes the basic elements of the 990, places them in a single body and reduces the zoom lens from 3x to 2.5x. However, the image quality, while excellent, is not quite as good as the 990's.

The 2.5x zoom lens is a shame, as most cameras at this price point have a 3x lens, but you can add telephoto, wide-angle or fish-eye lenses if you wish. There is a good choice of shutter speeds – from 1/1,000th of a second to eight seconds – but there are only two aperture settings, f/2.8 and f7.8, which is not really enough of a choice of manual controls for professionals.

However, Nikon has provided a whole different system, not found on the 990, for those unsure of how to use manual controls – and this is excellent. The 880 offers a wide range of pre-programmed 'Scene' settings – 11 in total – that change shutter response times, aperture ratings and even the flash to fit your circumstances. These range from Portrait, which features a wide aperture to defocus the background to Sunset, which exposes for the sky not ground. This system makes the 880 an excellent choice for the less technical photographer.

Manufacturer	Canon	Canon	Epson	Fujifilm	Kodak	Nikon	Olympus	Ricoh	Sony	Sony
Model	PowerShot G1	PowerShot Pro90 IS	PhotoPC 3000	FinePix 4900 Zoom	DC4800	Coolpix 880	Camedia 3040Z	RDC-7	DSC-P1	DSC-F505V
Price	£680 plus VAT	£1,099 plus VAT	£680 plus VAT	£799 plus VAT	£595 plus VAT	£595 plus VAT	£680 plus VAT	£595 plus VAT	£595 plus VAT	£599 plus VAT
CCD	3.34mp	3.34mp*	3.34mp	2.47mp	3.1mp	3.34mp	3.34mp	3.34mp	3.34mp	3.34mp*
Max output res	2,048-x-1,536	1,856-x-1,392	2,048-x-1,536	1,600-x-1,200	2,160-x-1,440	2,048-x-1,536	2,048-x-1,536	2,048-x-1,536	2,048-x-1,536	1,856-x-1,392
Interpolated CCD	N/A	N/A	4.8mp	4.7mp	N/A	N/A	N/A	7mp	N/A	3.7mp
Max interpolated res	N/A	N/A	2,544-x-1,904	2,400-x-1,800	N/A	N/A		3,072-x-2,304		2,240-x-1,680
Optical zoom	3x	10x	3x	6x	3x	2.5x	3x	3x	3x	5x
Digital zoom	4x	4x	2x	3.75x	2x	4x	5x	none	6x	2x
Lens manufacturer	Canon	Canon	Epson	Fujinon	Kodak	Nikkor	Olympus	Ricoh	Carl Zeiss	Carl Zeiss
Aperture range	f/2.0-2.5	f/2.8-8.0	f/2.0-2.5	f/2.8-11	f/2.8-4.5	f/2.8-4.2	f/1.8-1.0	f/2.6-3.4	f/2.8-5.3	f/2.8-3.3
ISO equivalent	50-400	50-400	125-800	125-800	100-400	100-400	100-400	100-400	100-400	100-400
Shutter speed	8-1/1,000th second	8-1/1,000th second	3-1/2,000th second	3-1/2,000th second	16-1/1,000th second	8-1/1,000th second	1-1/800th second	1.25-1/1,000th second	2-1/2,000th second	2-1/2,000th second
Shooting modes	10	11	4	0	7	11	7	4	5	4
Macro mode	6cm	10cm	20cm	10cm	2cm	4cm	20cm	1cm	20cm	2.5cm
Optical viewfinder	●	❍***	●	●	❍	●	●	●	●	❍
LCD size	1.8-inch	1.8inch	1.8-inch	1.8-inch	1.8-inch	1.8-inch	1.8-inch	2-inch	1.5-inch	2-inch
Flash modes**	3	4	4	5	3	4	3	3	3	3
Storage media	CompactFlash	CompactFlash	CompactFlash	SmartMedia	CompactFlash	CompactFlash	SmartMedia	SmartMedia	MemoryStick	MemoryStick
Connecter	USB, Serial, PAL	USB, Serial, PAL	USB, Serial, PAL	USB, PAL	USB, PCMCIA, PAL	USB, Serial, PAL	USB, Serial, PAL	USB, Serial, PAL	USB, PAL	USB, PAL
Weight	420g	680g	368g	410g	320g	275g	307g	270g	208g	475g
Size w/out battery(mm)	119.7-x-76.8-x-63.8	126.5-x-83.9-x-139.1	108-x-89-x-65	100-x-78.5-x-97.5	120-x-65-x-69	99.5-x-75-x-53.2	109.5-x-76.4-x-69.6	135.4-x-74-x-25.6	113-x-53.9-x-43.7	107-x-62-x-136
Software	Zoombrowser Photorecord PhotoStitch Remote Capture	Zoombrowser Photorecord PhotoStitch Remote Capture	PhotoSuite 3 PhotoVista QuickTime 4 PhotoPrint	FinePix Viewer Video Impression Photoshop LE Cradle	Kodak software CD	Photoshop LE Nikon View	Olympus software CD	PhotoStudio VideoImpression Panorama Maker PhotoMontage	Sony software CD	Sony software CD

N/A Not applicable, ❍ No, ● Yes, * Although only 2.6megapixels can be accessed by the lens, ** *Digit* does not consider OFF to be a flash mode, *** The viewfinder uses a small LCD screen

Olympus Camedia 3040Z

BEST Digit BUY

4.5

Price: £680 plus VAT
Company: Olympus, *020 7253 2772*
www.olympus.co.uk

The Olympus Camedia 3040Z is essentially the excellent 3030Z with a few bells-&-whistles to keep up with modern trends. It still costs the same as the 3030Z, sitting in higher compact price bracket of around £680 plus VAT.

New features in the 3040Z include a better lens with a bunch of improved electronics. The lens can hit aperture settings as low as f/1.8 and delivers even clearer images than the 3030Z. Its electronics now include multi-spot metering, a one-touch white balance function and a Spot AF control. Both contrast and sharpness controls have also been added, something usually confined to SLR cameras. The new lens and controls allows you to get round the 3030Z's problem of over-saturation – although the camera still suffers from an extremely complex menu system. Changing settings is still a matter of fighting through multiple menus. Factors in its favour, however, include a fast and accurate autofocus, and a well-focused macro mode.

The Olympus Camedia 3040Z also adds much-needed support for USB. There's also support for capturing low-resolution QuickTime movies. This camera has also inherited many good features from its predecessor, including a solid case, a flash bracket and the ability to take five pictures in under a second.

Ricoh RDC-7

3.0

Price: £595 plus VAT
Company: Ricoh, www.ricoh.co.uk
Johnson's Photopia,
01782 753 322

The RDC-7 styles itself after a slimline digital camera rather than a standard compact. Despite having a large 2-inch LCD screen, it's more comfortable to use through the viewfinder. The screen also displays a much smaller area than the photo it takes, which makes framing shots properly next to impossible.

The most hyped feature of the RDC-7 is the ability to record the highest resolution photos at 3,072-x-2,304 – equivalent to a 7mp CCD. It does this through interpolation, by taking two images in quick succession and merging them to generate fine detail. The results are impressive unless your subject matter or anything else in your picture is moving.

The image quality captured by the RDC-7 is also impressive – although not quite as sharp as the G1 or 3040Z, and burnout is highlighted more than most models. Ergonomics are good with a second trigger button found by the lens for use in taking portrait shots.

What lets the camera down is the lack of manual controls or feedback. The exposure settings are limited to +/- values and there's no way to independently set aperture or shutter speed. There's not even a live readout of these. Without access to these controls, the RDC-7 can't truly deliver on its image quality.

Sony Cyber-shot DSC-P1

3.5

Price: £595 plus VAT
Company: Sony, *0990 111 999*
www.sony.co.uk

The DSC-P1 is a prime example of how companies think 3.34 megapixel cameras can be targeted at consumers. It looks great (apparently based on the MemoryStick card), it's simpler than Forrest Gump's simple brother and it's even got an optional underwater case for your next holiday in the Maldives.

So far, so good. The only problem with the DSC-P1 is its overly simple nature. The camera's uncomplicated button arrangement may be great in a hurry, but there are no controls for manual focus or exposure (except for EV).

However, the DSC-P1 does have a good lens. Sony also knows a bit about CCDs, having invented the 3.34mp CCD and manufactured the component for most of the cameras in this round-up. With this in mind it's not surprise that casual shots taken with the camera looked great – but formal shooting produced overexposed flash shots and banding on groups of fine lines.

The camera uses Sony's proprietary MemoryStick media cards to store pictures on. The format is just as good as any of the more widely used card types – although you're unlikely to have a reader already unless you use Sony kit.

The main problem with the Cyber-shot DSC-P1, however, is the price. The camera works well for informal work – but at £600, we expect a full set of manual controls as well.

Sony Cyber-shot DSC-F505V

4.0

Price: £599 plus VAT
Company: Sony, *0990 111 999*
www.sony.co.uk

Sony is known for its amazing ability to miniaturize electronics into tiny boxes, and the DSC-F505V is certainly fun-sized. Unfortunately a whopping great lens on the front unbalances its tiny body and makes it hard to hold. You can twist the body to suit, but at any other angle than the horizontal the shutter control is hard to hit.

The F505V is based around the a pin-sharp Carl Zeiss 5x zoom lens and the standard Sony 3.34 megapixel CCD, although only 2.6mp of this is accessible down the lens. Images can also be interpolated up to 3.7mp equivalent – which delivers average results.

Other appreciable features include a macro mode that can focus on things up to an inch near, the ability to take pictures in widescreen aspect ratio (4:3) and a terminal for a flash unit – although there's no shoe for one on the camera body. The camera also offers a pop-up flash that looks nice but works not better than most and better than average video capture (using MPEG – so you can't crop or edit it).

However, it suffers from a lack of manual controls. Like the DSC-P1 it works excellently in informal situations but suffers when you try to get professional. With the F505V though, this is reflected in the low price.

Digit Buyer's Guide

At-a-glance product listings of every hardware and software product reviewed in the past 12 months

Digit's mission is to review and rate serious professional tools that bring out the creativity in you. Every month, *Digit* reviews more creative products than any other magazine in the UK, and *Digit* reviews are the most respected in the industry. The *Digit* Buyer's Guide provides the most authoritative listing of reviewed products in the past year, including ratings, contact details and product summary. Pricing is correct at the time of the review, but please note that pricing does change and you should contact your distributor for pricing information before purchasing. The listing is updated every month.

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Digit Best Buys

Apple PowerBook G4 500
When you first see this laptop, your initial reaction is likely to be a gasp of amazement. A top buy for committed Mac users, the power-hungry, and those who present to impress.

Lifebook X-7595
A clear screen, massive hard drive and a powerful graphics card mean that if you want power, this is the place to go.

Sony Vaio PCG-F808K
Stylish good looks, a powerful processor, a screen that delivers crips clear images, and digital video capabilities make the Sony laptop a *Digit* Best Buy.

Power Mac G4/500 DP
Apple finally gives the G4 what it needs: multiprocessor support and a usable keyboard and mouse. A screamingly fast solution for high-end work.

Workstations

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
A9000	4.0	Windows	APR 01	£2,000	ACi	www.aciplc.com	ACi	020 8357 1116
Pentium III 800 MHz, 256MB RAM, 20GB HD, 15-inch screen, Savage IX8+ graphics card, IEEE 1394, 3.4kg, 3.5 hour battery life								
Amarda E500	3.5	Windows	JUL 00	£2,196	Compaq	www.compaq.co.uk	Compaq	0845 270 4222
Heavy and ugly it may be but this Amarda packs a powerful punch with its 650MHz processor, kicking competitors into touch								
AP250 workstation	4.5	Windows	FEB 00	£3,525	Compaq	www.compaq.co.uk	Compaq	0845 270 4222
If you can't stretch to a real powerhouse, the Compaq AP250 is an ideal station to bet on, with excellent power and expandability								
AP500 workstation	4.0	Windows	MAY 99	£3,069	Compaq	www.compaq.co.uk	Compaq	0845 270 4222
The PowerStorm card gets top marks for sheer power at a respectable price, and five free PCI slots deserve a look, but it's let down by the design								
AP550 workstation	4.5	Windows	MAY 00	£3,544	Compaq	www.compaq.co.uk	Compaq	0845 270 4222
With impressive results from its 733MHz Pentium III processor, this workstation zips along like a Formula 1 driver and it won't break the bank either								
Deskpro DW300	4.0	Windows	MAY 01	£1,499	Compaq	www.compaq.co.uk	Compaq	0845 270 4222
Powerful and good value, but lacking in features. Pentium 4 1.4GHz, 128MB RD RAM, 20GB Ultra ATA/100 HD, 16x DVD drive								
iMac DV SE	4.5	Mac	APR 00	£1,020	Apple	www.apple.com	Apple	0800 783 4846
A basic entry-level video system that makes digital video child's play. It's a cost-effective solution. Shame about the DVD player								
Inspirion 8000	3.5	Windows	APR 01	£2,305	Dell	www.dell.co.uk	Dell	0870 907 5819
Pentium III 850MHz, 256MB RAM, 20GB HD, 15-inch screen, ATI Rage M4 graphics card, 3.26kg, 2.6 hour battery life								
Latitude C600	4.0	Windows	DEC 00	£1,849	Dell	www.dell.co.uk	Dell	0870 152 4699
A blisteringly fast machine and full-featured package for power-hungry users on the move – and it won't break your back to carry it								
Lifebook X-7595	4.5	Windows	APR 01	£2,400	Fujitsu-Siemens	fujitsu-siemens.co.uk	Fujitsu	01344 475 000
Pentium III 850MHz, 256MB RAM, 30GB HD, 15.1-inch screen, ATI Rage M4 graphics card, 3.0kg, 3 hour battery life								
Omnibook 6000	3.5	Windows	APR 01	£2,750	HP	www.hp.com/uk	HP	01344 360 000
Pentium III 850MHz, 128MB RAM, 20GB HD, 15-inch screen, ATI Rage M 128 graphics card, 2.9kg, 4 hour battery life								
Portege 7140 CT 2.5	2.5	Windows	JUL 00	£2,195	Toshiba	www.toshiba.com	Toshiba	020 7242 7295
Lacks a portable CD or DVD drive, has puny hard drive and its joystick nipple is a pain to operate								
PowerBook G4	4.5	Mac	APR 01	£2,499	Apple	www.apple.com/uk	Apple	0800 783 4846
G4 500MHz, 256MB RAM, 20GB HD, 15.2-inch screen, ATI Rage M 128 graphics card, FireWire, 2.4kg, 5 hour battery life								
Power Mac G4 Cube	4.0	Mac	NOV 00	£999	Apple	www.apple.com/uk	Apple	020 7692 9990
Small but powerful: the Cube sports a 450MHz processor, FireWire ports, and optional 32MB ATI Radeon card. Lack of expansion sucks, though								
Power Mac G4/533	4.0	Mac	MAR 01	£1,599	Apple	www.apple.com/uk	Apple	0800 783 4846
533MHz PowerPC G4, NVidia GeForce MX card, 32MB VRAM, 133MHz bus, five free PCI slots, 40GB Ultra ATA/66 HDD, CD-RW, 128MB SDRAM								
Power Mac G4/500	4.5	Mac	MAY 00	£2,349	Apple	www.apple.com/uk	Apple	0800 783 4846
500MHz PowerPC G4, ATI Rage 128 card, 16MB VRAM, 3 FireWire and 2 USB ports, 27GB Ultra ATA HDD, DVD, three free PCI slots, 1.5GB max RAM								
Power Mac G4/500 DP	4.5	Mac	OCT 00	£2,499	Apple	www.apple.com/uk	Apple	0800 783 4846
Dual 500MHz G4 processors, up to 1.5GB of RAM, ATI Rage 128 card with 16MB VRAM, 40GB ATA/66 hard drive, 10/100/1,000BaseT ethernet								
PowerBook G3	4.5	Mac	JUL 00	£2,349	Apple	www.apple.com/uk	Apple	0800 783 4846
It may be more expensive than the Windows alternatives but its sheer power and stylish design make it a Digit Best Buy								
Satellite Pro 4600	3.5	Windows	APR 01	£1,599	Toshiba	www.toshiba.co.uk	Toshiba	020 7872 8000
Pentium III 700MHz, 128MB RAM, 10GB HD, 14.1-inch screen, Trident XP graphics card, 3.17kg, 3 hour battery life								
SGI 230	3.5	Windows	OCT 00	£1,890	SGI	www.sgi.com	SGI	0118 925 7500
A standard workstation, although the well-rounded Linux support and powerful 3D graphics card may make for a large bonus for 3D users								
Solo 9300 LS	4.5	Windows	JUL 00	£1,799	Gateway	gateway.co.uk	Gateway	0800 973 132
Not the most attractive laptop available but fully featured and with as much power as you could wish for								
Tecra 8100	4.5	Windows	APR 00	£1,995	Toshiba	www.toshiba.com	Toshiba	020 7242 7295
A mobile design unit with fast system, fantastic screen, great colour and sharpness, and a near 4-hour battery life. Ideal for the desktop designer								
TravelMate 730	3.5	Windows	JUL 00	£2,899	Acer	www.acer.co.uk	Acer	0870 900 2237
Worthy latptop, with large 15-inch screen and solid specs but let down by fiddly scroll features								
TravelMate 739TLV	4.0	Windows	APR 01	£2,550	Acer	www.acer.co.uk	Acer	0870 900 2237
Pentium III 850MHz, 128MB RAM, 20GB HD, 15.1-inch screen, ATI Rage LT graphics card, 3.2kg, 4.2 hour battery life								
ThinkPad 2041UK	4.5	Windows	JUL 00	£2,929	IBM	www.ibm.com	IBM	01475 898 795
One of the first laptops to use a 700MHz Pentium III chip for super fast performance, coupled with its new thinner case makes this a Digit Best Buy								
ThinkPad T21	3.0	Windows	APR 01	£2,300	IBM	www.ibm.com/uk	IBM	0870 907 9070
Pentium III 750MHz, 128MB RAM, 20GB HD, 14-inch screen, Savage IX8+ graphics card, 2.1kg, 3.2 hour battery life								
Vaio 2600RE 4.0	4.0	Windows	JUL 00	£1,959	Sony	www.sony.co.uk	Sony	0990 111 999
The best-looking laptop around, the 2600RE puts in an impressive performance								
Vaio PCG-F808K	4.5	Windows	APR 01	£2,384	Sony	www.sonystyle.com	Sony	0990 111 999
Pentium III 750MHz, 128MB RAM, 20GB HD, 15-inch screen, ATI Rage M 128 graphics card, IEEE 1394, 3.42kg, 2.5 hour battery life								
Visualize x-class	4.5	Windows	AUG 00	£4,155	HP	www.hp.com/uk	HP	01344 360 000
An expensive but incredibly powerful workstation that will make your creative team sit up and beg for more. Ideal for high-end graphics work								
Zx1 Vizual	4.5	Windows	JAN 00	£2,800	Intergraph	intergraph.com/uk/	Intergraph	01793 422 000
A creative powerhouse complete with Wildcat resident that can claw its way through almost any 3D task with mind-blowing ease								

Digital cameras

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
3D 1500	3.0	Both	MAY 00	£2,600	Minolta	www.minolta.com	Phantasia	01993 883 700
Specially modified camera with MetaFlash technology that lets you capture 3D models from real -life objects								
Camedia 3030Z	4.5	Both	AUG 00	£680	Olympus	www.olympus.co.uk	Olympus	020 7253 2772
Compact and solid feeling 3.3mp camera offering excellent image quality, though a little prone to over-saturation								
Camedia C-211 Zoom	3.0	Both	JAN 01	£TBA	Olympus	www.olympus.co.uk	Olympus	020 7253 2772
If you use a Polaroid camera for 'roughs', this brings it into the digital age – but it's bulky, and only offers 2.1 megapixels								
Camedia C-2100	3.5	Both	FEB 01	£899	Olympus	www.olympus.co.uk	Olympus	020 7253 2772
A flexible camera for digital photographers who take both wide-angle and telephoto shots – although it has only a 2.1 megapixel CCD								
Camedia E-10	4.0	Both	NOV 00	£1,276	Olympus	www.olympus.co.uk	Olympus	020 7523 2772
A well-put-together, powerful digital camera offering a top resolution of 4.1 megapixels – but with a price tag to match								
CoolPix 880	4.5	Both	DEC 00	£596	Nikon	www.nikon.co.uk	Nikon	020 8541 4440
A 3.34 megapixel digital zoom camera with a good lens, extensive built-in modes for difficult shooting conditions, and full manual controls								
CoolPix 990	4.5	Both	AUG 00	£723	Nikon	www.nikon.co.uk	Nikon	020 8541 4440
Best in its class, although expensive: 3.34mp CCD, 3:1 zoom lens with 2cm macro, external flash control, five-point autofocus, and movie capture								
Cybershot DSC-P1	3.5	Both	APR 01	£595	Sony	www.sony.co.uk	Sony	0990 111 999
Simple, functional, and attractive – but this 3.34 mega-pixel digital camera is severely lacking in manual controls								
D1	4.5	Both	MAY 00	£3,499	Nikon	www.nikon.co.uk	Nikon	0800 230 220
A superb, pro-quality digital SLR camera. Huge versatility, high-speed, and a great image quality is marred slightly by a so-so resolution								
DC3800	3.0	Both	MAR 01	£298	Kodak	www.kodak.co.uk	Kodak	0870 243 0270
A tiny, stylish camera offering a 2.1 megapixel resolution that has sacrificed much of its quality and usefulness to reach that point								
DC4800	3.5	Both	FEB 01	£596	Kodak	www.kodak.com	Kodak	0870 243 0270
An aperture-priority digital camera with dedicated control dials and buttons for fast selection. Rather expensive for its feature set								
DCS290	4.5	Both	DEC 99	£1,999	Canon	www.canon.co.uk	Canon	0800 680 8062
Best of the DCS range. Features 1,280-x-960 resolution, 3x optical and 2x digital zoom, serial, USB, video connectors, Kodak Picture Card								
EOS D30	5.0	Both	APR 01	£1,999	Canon	www.canon.co.uk	Canon	0800 680 8062
An excellent value, high-quality digital SLR camera for Canon lenses and accessories. It produces excellent quality images								
FinePix 40i	2.5	Windows	APR 01	£399	Fujifilm	www.fujifilm.co.uk	Fuji UK	020 7586 5900
With one device performing two major functions, the 40i will quickly exhaust memory, battery life, and your patience								
FinePix 4700 Zoom	4.0	Both	AUG 00	£595	Fujifilm	www.fujifilm.co.uk	Fuji UK	020 7586 5900
A very high-resolution compact digital camera with a good feature set and a bargain price. Shame some of the images are noisy								
FinePix 4900 Zoom	4.5	Both	JAN 01	£799	Fujifilm	www.fujifilm.co.uk	Fuji UK	020 7586 5900
A high-quality digital camera with a long-zoom lens, and a good range of dedicated controls including manual focus and multi-frame capture								
FinePix S1 Pro	4.5	Both	DEC 00	£2,300	Fujifilm	www.fujifilm.co.uk	Fuji UK	020 7586 5900
The S1 Pro is a versatile digital SLR that captures good-quality colour at three resolutions, but delivers slightly soft results								
GC-X1	4.0	Both	SEP 00	£596	JVC	jvc-europe.com	JVC	020 8208 7654
Good all-round compact digital camera; innovative quality-improvements mode require tripod; so-so lens has good macro								
Mavica MVC-CD10000	3.5	Both	OCT 00	£1,021	Sony	www.sony.co.uk	Sony	0990 111 999
First digital camera to save images to CD-R, 2.1-megapixel CCD, 1,600-x-1,200 resolution, 10x optical zoom, Steady Shot stabilization system								
MX-2900	4.0	Both	AUG 00	£510	Fujifilm	www.fujifilm.com	Fuji UK	020 7586 5900
Excellent digital camera with great output. Features 1,800-x-1,200 resolution, 38-105mm optical eqv zoom, 2.5x digital zoom, serial, SmartMedia								
PhotoPC 800	4.0	Both	DEC 99	£460	Epson	www.epson.co.uk	Epson	0800 220 546
Higher resolution camera that scores well. Features 1,600-x-1,200 resolution, 2x digital zoom, serial, USB, video, CompactFlash								
PhotoPC 3000	4.0	Both	AUG 00	£680	Epson	www.epson.co.uk	Epson	0800 220 546
3.3mp CCD – interpolation setting to 4.8mp. Offers movie capture with sound, five-shot burst mode, remote control and support for DPOF								
PhotoPC 850z	4.0	Both	AUG 00	£535	Epson	www.epson.co.uk	Epson	0800 220 546
Prosumer camera raises the bar, but the three megapixels requires interpolation. Images are crisp and good quality though								
PowerShot G1	4.5	Both	FEB 01	£680	Canon	www.canon.co.uk	Canon	0800 680 8062
A semi-pro camera with solid build, full features, great lens and proper external flash support makes it ideal for the digital snapper on the move								
PowerShot Pro90 IS	3.5	Both	MAY 01	£1,099	Canon	www.canon.co.uk	Canon	0800 680 8062
The image-stabilized lens with 10:1 zoom and full exposure control set are excellent – but it suffers from lethargic controls								
PowerShot S10	4.5	Both	APR 00	£549	Canon	www.canon.co.uk	Canon	0800 680 8062
Compact, solid, highly-specified digital camera with excellent software, but pricey. Image output is great for a camera of this class								
PowerShot S20	4.0	Both	AUG 00	£699	Canon	www.canon.co.uk	Canon	0800 680 8062
3.34mp CCD, 2:1 zoom lens with x2 zoom, and built-in panorama and quilting features with supporting software								
Q-M100V	4.0	Both	JUN 99	£469	Konica	www.konica.co.uk	Konica	020 8751 6121
Good-value digital camera, ideal as a starting point. Features 1,152-x-872 resolution, 2x digital zoom, 7.9cm to infinity, CompactFlash								
QV-3000EX	4.5	Both	AUG 00	£595	Casio	www.casio.com	Casio	020 8450 9131
A feature-rich, high-resolution camera with a drive that can store scores of high-quality images. Let down by uninspired styling								
RDC-5000	4.5	Both	DEC 99	£650	Ricoh	www.ricoh.com	Photopia	01782 753 372
Excellent all-rounder with super resolution. Features 1,792-x-1,200 resolution, 38-86mm optical eqv zoom, serial, video, USB, SmartMedia								
RDC-5300	4.5	Both	JAN 00	£550	Ricoh	www.ricoh.com	Photopia	01782 753 322
With a top 2.3 million pixels image resolution, the RDC-5300 is fully rounded in its features and value for money								
RDC-7	3.0	Both	OCT 00	£595	Ricoh	www.ricoh.com	Photopia	01782 753 322
Great styling and packaging, some clever features but let down by inaccurate preview monitor and poor exposure overrides								

Digital video cameras

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
DCR-7000	4.0	Both	MAR 00	£1,100	Sony	sony-europe.com	Sony	0990 111 999
Digital camcorder with Digital8 video format, massive 80x digital zoom, DV-out, S-Video in, RS-232c out and Hi8 tape								
DCR-TRV20E	4.0	Both	JAN 01	£1,500	Sony	sony-europe.com	Sony	0990 111 999
An almost brilliant camera sporting a high-quality lens, and useful secondary features. A Windows machine is needed for the MemoryStick, though								
DM-XL1	5.0	Both	JAN 01	£1,897	Canon	www.canon.co.uk	Canon	0500 246 246
An object lesson in how to design a truly professional DV camera without providing too many functions for anyone except a cameraman								
GR-DVL9800		Both	APR 00	£1,245	JVC	www.jvc.co.uk	DirekTek	01494 471 100
A good all-round camera with the added bonus of JVC's JLIP video-transfer system								
GR-DVX10	3.5	Both	JAN 01	£1,080	JVC	www.jvc.co.uk	JVC	020 8208 7654
An extremely compact camera that's comfortable in the hand, and very easy to use. More stable when shooting static footage than chase scenes								
GY-DV500E	4.5	Both	JAN 01	£3,250	JVC Pro	www.jvcpro.co.uk	JVC Pro	020 8896 6000
If you have the skills and a strong shoulder, the GY-DV500E will give you access to powerful, professional features – and a broadcast-level lens								
MV3	3.0	Both	JAN 01	£978	Canon	www.canon.co.uk	Canon	0500 246 246
Unless you need a camera small enough to win style points or for Roger Cook-style investigations, you can get more for your money elsewhere								
MV-30	3.5	Both	SEP 00	£1,000	Canon	www.canon.co.uk	Canon	0500 246 246
A DV camera that offers top-notch picture quality but is hampered by an annoyingly low refresh rate on the LCD and viewfinder								
NVDS55B	2.5	Both	JAN 01	£808	Panasonic	panasonic.co.uk	Panasonic	0990 357 357
A well-designed and useable camera, but unless you're on a budget, you might want to splash out a bit more cash								
VL-PD6H	3.5	Both	JAN 01	£850	Sharp	www.sharp.co.uk	Sharp	0800 262 958
Great if you don't demand too much from a camera and want something that's very easy to use. A perfect camera for storyboard sketches								
VL-SD20H		Both	APR 00	TBA	Sharp	www.sharp.co.uk	Sharp	0800 262 958
Aimed at consumers, this camera can still produce high-quality footage								

Digit Best Buys

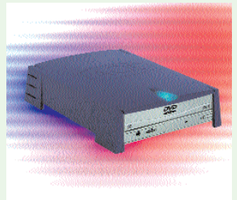
Canon EOS D30
If you need a digital SLR, particularly if you use Canon lenses, the D30 should be high on your list. It's versatile, easy to use, produces excellent quality, and the street price has already slipped below £2,000.

FinePix 4900 Zoom
A very good camera for the professional photographer who wants to take full control of settings, or who specializes in sports and wildlife shots that require a medium telephoto lens.

Canon DM-XL1
Although the XL1 has been around for a number of years now, it still remains an object lesson in how to design a truly professional DV camera without providing too many functions for anyone except a cameraman.

JVC Pro GY-DV500E
When it comes to miniDV-based cameras, you can't get more serious or professional than the GY-DV500E.

Digit Best Buys



LaCie DVD RAM
A fast transfer rate and cheap media make this DVD-RAM drive a great choice for archiving and distribution.

Pioneer DVR-A03
It may not be the Speedy Gonzales of the older optical media world, but this drive may well change the face of computing. Now you can burn a 4.7GB DVD-R disc in under 30 minutes, and use it in your living room DVD player.

LaCie Electron22blue II
A perfectly crafted screen, high-quality components, and the optional Blue Eye hardware calibration system all combine to make this an outstanding piece of equipment.

Diamondtron Pro
The 2045u has the correct set of high-end specs – including a 22-inch screen, 20-inch maximum viewable area, and a maximum resolution of 2,048-x-1,956. Chuck in dual VGA inputs and five USB ports, and you have an excellent monitor overall.

Storage

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
C200 DVD Changer	4.0	Both	MAY 01	$1,700	Powerfile	dvdchanger.com	Powerfile	001 510 656 0142
If you've a lot of materials that need tidying, you can't go wrong here – unless you work with a mixed-platform network								
Clik!	4.0	Both	MAR 01	£179	Iomega	iomega-europe.com	Iomega	020 7365 9527
A cheap, robust storage medium let down only by the fact that it hasn't been widely adopted								
CRW 2100	3.5	Both	MAR 01	£170	Yamaha CDR	www.yamaha.co.uk	Image Store	01635 297 297
The CRW 2100 may be the fastest drive available for CD-R burning, but slow CD-RW writing and CD reading mars its overall performance								
Digital Wallet	3.5	Both	APR 01	£549	Minds@Work	mindsatwork.com	Introphoto	01628 771 055
An excellent, original idea for portable storage that, despite offering 6GB of space, just doesn't live up to its potential								
DLT 1	4.0	Both	MAR 01	£1,065	Benchmark	benchmarktape.com	Benchmark	Buy online
Tape really is essential for professional archiving – if you can stand the sluggish speed, the massive capacity should suit all your back-up needs								
DVD-RAM	4.5	Both	MAR 01	£449	LaCie	www.lacie.co.uk	LaCie	020 7872 8000
An extremely fast transfer rate and cheap media make for a storage medium that will satisfy both archiving and distribution requirements								
DVR-A03	4.5	Windows	MAY 01	£625	Pioneer	www.pioneer.co.uk	Pioneer	01753 789 500
This type of DVD-R/CD-RW combo drive promises to change the worlds of computing and entertainment								
DynaMO 1300	4.0	Both	MAR 01	£260	Fujitsu	www.fujitsu.co.uk	Fujitsu	020 8606 4605
Impressive capacity and reasonably fast. This would be ideally placed as both an archiving tool and near-line storage for video and multimedia work								
Jaz 2GB	4.5	Both	MAR 01	£269	Iomega	iomega-europe.com	Iomega	020 7365 9527
Fast and robust, the Jaz is the all-terrain wonder that creatives will benefit the most from								
MemoryStick	4.0	Both	MAR 00	Call	Sony	www.sony.co.uk	Sony	0990 111 999
New storage technology for digital cameras, laptops and portable devices. It works with any Memory Stick supported product								
MicroDrive	4.0	Both	MAR 01	£333	IBM	www.ibm.com	IBM	0800 169 1458
The tiniest, insanest drive in the world. 1GB capacity on a drive only slightly larger than a postage stamp – a great removable storage solution								
MP9120A	4.5	Both	FEB 01	£240	Ricoh	www.ricoh.de	On-Line Dist	01634 294 000
A stellar CD-RW, CD-R, and DVD-ROM performance in a single drive. This drive also has the benefit of one-tray, all-media convenience								
Orb	4.0	Both	MAR 01	£135	Castlewood	castlewood.com	CMS	020 8960 6000
Offers FireWire, SCSI and USB. While it hasn't been widely accepted, for departmental back-ups this is a cheap and robust solution								
PocketDrive	4.0	Both	MAR 01	£549	LaCie	www.lacie.co.uk	LaCie	020 7872 8000
A truly cutting-edge product: 30GB, and little bigger than a PDA. Huge capacity, and very fast – but rather pricey								
Zip 100	3.5	Both	MAR 01	£62	Iomega	iomega-europe.com	Iomega	020 7365 9527
Something of a touchstone device, the Zip 100 is still a vital part of the storage set-up. It's still hanging on, but only just								
Zip 250	4.0	Both	MAR 01	£149	Iomega	iomega-europe.com	Iomega	020 7365 9527
With a single disk costing only around £10, the Zip 250 may not be an archive solution, but it's ideal for distributing data								

Monitors

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
2100A	4.5	Both	MAY 01	£499	Hansol	www.hansol-uk.com	Hansol	01252 360 400
A great monitor if you care about your desk space – but not if you need top-notch colour clarity. Good if you're on a strict budget, though								
Belinea 10 80 80	3.5	Both	MAY 01	£577	Maxdata	www.maxdata.co.uk	Maxdata	01344 788 910
Bright, accurate RGB colours, a large viewable area, and respectable max resolution, but colour gradation wasn't so good. Adequate value for money								
DiamondPro 2045u	4.5	Both	MAY 01	£719	NEC-Mitsubishi	mitsubishi-monitors.co.uk	Mitsubishi	020 7202 6300
This monitor offers the correct set of high-end specs: 20-inch max viewable area, 2,048-x-1,956 max resolution, and a 95Hz refresh rate								
Electron22Blue II	4.5	Both	MAY 01	£799	LaCie	www.lacie.co.uk	LaCie	020 7872 8000
Just about everything you need from a monitor: a flat tube, flicker-free display, and great colour reproduction. The only flaw is the high price								
Flexscan T962	3.5	Both	MAY 01	£879	Eizo	www.eizo.com	ProDisplay	01483 719 5000
The T962 delivers good but not outstanding performance. It would be a decent enough monitor if it were a couple of hundred pounds cheaper								
LaCie Blue Eye 2.0	3.5	Mac	OCT 00	£365	LaCie	www.lacie.co.uk	LaCie	020 7872 8000
An excellent tool for colour-conscious designers – although users of Windows or older LaCie monitors will be disappointed								
Microscan G1000	3.5	Both	JUN 00	£535	ADI	www.adi.com	ADI	020 8327 1900
Budget 21-inch monitor that doesn't lack professional features. Slightly let down by drab colour reproduction								
Multiscan G500	4.0	Both	MAY 01	£775	Sony	www.sony.co.uk	Sony	0990 424 424
An absolute corker. Fantastic image quality, 2,048-x-1,536 max resolution at 85Hz, but only 19.8 max viewable area, and fiddly controls								
ProNitron 21/800	4.0	Both	MAY 01	£669	Formac	www.formac.com	Formac	020 8533 4040
Mac-only calibration software aside, this is a good choice for a dual-display set-up. It's ideal for designers where every centimetre of footprint counts								
P220f	4.0	Both	MAY 01	£579	ViewSonic	viewsonic.com/uk	ViewSonic	0800 833 648
The best of the budget monitors. Offers a 20-inch max viewable area with a max resolution of 1,600-x-1,200 at 75Hz. Great if you're on a budget								
Reference Calibrator	4.5	Both	MAY 01	£3,995	Barco	typemaker.co.uk	Typemaker	0121 604 1234
If your work requires pitch-perfect colour control, you can't go far wrong with this monitor, although it could do with a flatter screen								
Studioworks 221U	4.0	Both	MAY 01	£489	LG	lgelectronics.co.uk	LG	0870 607 5544
Delivers a bright, sharp picture, has a 20-inch maximum viewable area, and easy-to-use controls. The screen could be flatter, though								
SyncMaster 170MP	4.0	Windows	NOV 00	£1,819	Samsung	www.samsung.com	Samsung	020 8391 0168
If you've set your heart on an LCD display, the 170MP offers great display quality, and excellent value for money								
VisionMaster Pro 510	3.0	Both	JUN 00	£689	Iiyama	www.iiyama.com	Iiyama	01438 745 482
Fine monitor with above-average resolution support. Features 20-inch screen and 1,280-x-1,024 at 85Hz								

Printers

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
BJC-8200 Photo	4.0	Both	FEB 01	£254	Canon	www.canon.co.uk	Canon	0500 246 246
An impressive inkjet that produced excellent results on Canon's new Pro paper. While not too fast, it's quiet, and relatively cheap to run								
Colour LaserJet 4500N	3.5	Both	MAY 00	£2,360	HP	www.hp.co.uk	HP	0870 241 1485
Versatile colour laser, its 64MB of RAM means it's very fast. A big beast, though								
DeskJet 990Cxi	4.0	Both	FEB 01	£212	HP	www.hp.co.uk	HP	0870 241 1485
Great performance and lots of funtionality for those who need fantastic quality output at an affordable price								
DeskJet 1220C	4.0	Both	FEB 01	£355	HP	www.hp.co.uk	HP	0870 241 1485
An economical A3 inkjet that offers fast and versatile printing, and won't disappoint when producing photographs or colour proofs								
FS-5900C	3.0	Windows	MAY 00	£2,425	Kyocera	www.kyocera.co.uk	Kyocera	0118 931 1500
Large footprint and awkwardly-placed main paper cassette make this slightly unwieldy. Features 600dpi and PostScript Level 2 emulation								
HL-2400CE	3.0	Both	MAY 00	£1,350	Brother	www.brother.co.uk	Brother	0161 931 2354
Compact, well-designed proofer. Features 600-x-2,400dpi, 32MB of RAM, but PostScript Level 2 emulation proved problematic								
Magicolor 2200	3.0	Both	FEB 01	£1,395	Minolta-QMS	minolta-qms.co.uk	Minolta-QMS	01784 442 255
The excellent colour, detail and low-price would make this a great value-for-money printer were it not for problems printing EPSs								
Phaser 740DP	4.0	Both	MAY 00	£3,147	Tektronix	www.tektronix.com	Tektronix	01628 403 600
Excellent proofer. Features 1,200dpi output, 128MB RAM plus parallel and ethernet ports								
Phaser 850	4.0	Both	MAY 00	£2,406	Tektronix	www.tektronix.com	Tektronix	01628 403 600
Fast on graphics and cheap to operate, with low ownership costs								
PhotoSmart 1218	4.5	Both	FEB 01	£280	HP	www.hp.co.uk	HP	0870 241 1485
With a top resolution of 2,440dpi, this inkjet produced fabulous, lush colours, sharp lines, and plenty of detail. Reasonably fast, too								
UP-DP10 photo printer	3.0	Both	SEP 00	£297	Sony	www.sony-cp.com	Sony CP	01932 816 000
A good printer for what it is, but most users' needs could be satisfied by a cheaper photo-printing inkjet								
SpectraStar T8104	3.5	Both	MAY 00	£1,795	Tally	www.tally.com	Tally	0800 525 318
Budget colour laser. Features PostScript Level 2 emulation, 16/4 ppm and 600dpi output								
Stylus 2000P	4.5	Both	FEB 01	£680	Epson	www.epson.co.uk	Epson	0800 220 546
Gorgeous, rich colour with no loss of detail, stunning good looks, and quiet operation make this an essential tool for photographic output								
Stylus Color 980	3.5	Both	FEB 01	£259	Epson	www.epson.co.uk	Epson	0800 220 546
An exceptionally fast inkjet – however, while colour and B&W gradients were great, colour matching was a little poor								
Stylus Color 1270	4.0	Both	FEB 01	£339	Epson	www.epson.co.uk	Epson	0800 220 546
A fast, quiet A3 inkjet featuring six-colour printing, it produces perfect, continuous tones with no banding. Colour matching was a little off, though								
Stylus Pro 5500	4.5	Both	APR 01	£2,345	Epson	www.epson.co.uk	Epson	0800 220 546
An expensive but worthwhile investment for those who need accurate colour proofs and fabulous photo-realistic output that will last a lifetime								
Z52	3.5	Both	FEB 01	£164.50	Lexmark	www.lexmark.co.uk	Lexmark	01628 481 500
A good no-fuss, fast workhorse at a price that won't make you wince, but for a few pennies more there are better inkjets available								

Scanners

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
ArtixScan 2500	4.0	Both	SEP 00	£3,199	Microtek	microtek.com	Microtek	01908 317 797
A4 scanner with handy features. Offers 2,500-x-2,500dpi, 36-bit colour depth and comes with the full version of Photoshop 5.5								
ArtixScan 2020	4.0	Both	SEP 00	£4,199	Microtek	microtek.com	Microtek	01908 317 797
A3 scanner with twin-plate system. Powerful software and hi-res sampling rate of 2,000dpi makes this a good all-rounder								
Agfa HiD	4.5	Both	JUN 00	£1,500	Agfa	agfa.co.uk	Agfa	020 8231 4903
Innovative technology, great image and colour capture, plus some intelligent software means that studios can save a bundle with the HiD								
CanoScan FS-2710	4.0	Both	MAR 01	£499	Canon	www.canon.co.uk	Canon	0121 680 8062
An entry-level film scanner with a good feature set and resolution. Its Mac OS software is disappointing; the Windows offering is better								
DuoScan HiD	4.0	Both	SEP 00	£1,275	Agfa	agfa.co.uk	Agfa	020 8231 4903
Well-featured A4 scanner based on twin-plate system. Offers 1,000-x-2,000 resolution, 42-bit and good software								
DuoScan T2500	3.5	Both	SEP 00	£1,275	Agfa	agfa.co.uk	Agfa	020 8231 4903
Similiar to the DuoScan HiD, this A4 scanner offers higher resolution at 2,500-x-2,500 and a larger scanning path								
Expression 1600 Pro	3.0	Both	SEP 00	£714	Epson	epson.co.uk	Epson	0800 220 546
Small and light A4 scanner offers 36-bit, 1,600-x-3,200 dpi and generous software bundle								
GT-12000	3.5	Both	OCT 99	£3,099	Epson	epson.co.uk	Epson	0800 220 546
Linoscan 1450	4.0	Mac	AUG 00	£1,249	Heidleberg	heidelberg.com	CPS	01242 285 107
A great scanner offering a full feature set and swift scanning, it's only let down by slow image software and lack of Photoshop support								
Linoscan F2400 XL	4.0	Both	SEP 00	£4,995	Heidleberg	heidelberg.com	CPS	01242 285 107
Huge A3 scanner with dual-lens feature. Offers 2,400-x-2,400dpi, 42-bit and the excellent LinoColor Elite software								
Mirage II Pro	4.0	Both	OCT 99	£2,495	Umax	www.umax.com	IMC	01344 871 329
Top-notch scanner with high resolution using two lenses. Lens 1 has 700-x-1,400 resolution, lens 2 has 1,400-x-2,800, 36-bit colour								
PhotoLook 1100	4.0	Both	JUL 00	£799	Umax	www.umax.com	IMC	01344 871 329
One of the first FireWire scanners to hit the streets and backed by some impressive picture-capture controls – it's a bargain								
PowerLook 2100XL	4.5	Both	SEP 00	£2,199	Umax	www.umax.com	IMC	01344 871 329
A3 versatility, ease of use, great price and attractive software bundle makes this an excellent choice for designers								
PowerLook 3000	4.0	Both	SEP 00	£3,999	Umax	www.umax.com	IMC	01344 871 329
A4 scanner that excels at transparency scanning. Offers a top resolution of 3,040-x-3,040dpi and 42-bit colour depth								
Saphir HiRes	4.5	Both	SEP 00	£3,995	Heidelberg	heidelberg.com	CPS	01242 285 100
Compact and heavy A4 scanner. Top resolution of 3,048-x-3,048dpi, 42-bit colour depth and the excellent LinoColor Elite software								
ScanMaker X12	4.0	Both	JUL 00	£275	Microtek	microtek.com	Microtek	01908 317 797
It might be a bit low-end, but you do get a good deal for your money. It offers some top features normally found on more expensive models								

3D graphics cards

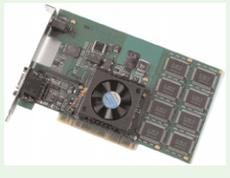
NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
3D Labs Oxygen	4.0	Windows	OCT 00	£1,300	3D Labs	www.3dlabs.com	3D Labs	01784 470 555
A monster of a card for discerning designers. Very high performance, but you wouldn't expect otherwise at the price								
All-In-Wonder	4.0	Both	OCT 00	£189	ATI	www.ati.com	ATI Tech	01628 533 115
If you've got a small budget and need both fast graphics and audio/video capabilities, the ATI card is probably the best choice								
Diamond MM Fire GL1	3.5	Windows	OCT 00	£499	S3	www.s3.com	S3	0118 944 4477
The GL1 is a good option for those not able to stretch to the Gloria II – it also supports overlay planes needed in some high-end 3D applications								
Elsa Gloria II	4.5	Windows	OCT 00	£596	Elsa	www.elsa.co.uk	Elsa	0800 0563 445
One of the best cards there is for high-end work – it's well worth splashing out for some serious polygon-chomping								
Elsa Synergy II	3.5	Windows	OCT 00	£149	Elsa	www.elsa.co.uk	Elsa	0800 0563 445
Designed for 3D professionals who have less demanding graphics tasks, but need more than a cheap gaming card								
Formac Proformance III	5.0	Mac	OCT 00	£169	Formac	formac.com	Formac	020 8533 4040
For Mac users looking for the ultimate 3D performance, you no longer have to feel second best to your Windows brethren								
G400 Max	4.0	Windows	OCT 00	£95	Matrox	matrox.com	Matrox	01753 665 544
A small price to pay for accelerated 3D graphics – this card is aimed more at 3D enthusiasts and gamers, but boasts some very good features								

Digit Best Buys

Epson Stylus Pro 5500
At £2,345, it isn't for everyone, but if you need first-class photographic output and accurate colour matching, then this Epson inkjet should be top of your list.

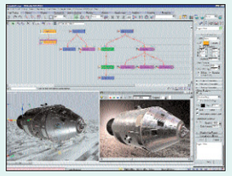
HP PhotoSmart 1218
With a top resolution of 2,400dpi, this A4 colour inkjet produces fabulous photo-realistic output and comes with slots for Compact Flash and SmartMedia memory cards, which make it a useful tool for digital photographers who need quick prints.

Umax PowerLook 2100XL
A3 versatility, ease of use, great price and attractive software bundle makes this an excellent choice for designers.



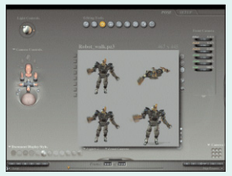
Formac Proformance III
For Macintosh users looking for the ultimate 3D performance, you no longer have to feel second best to your Windows brethren.

Digit Best Buys



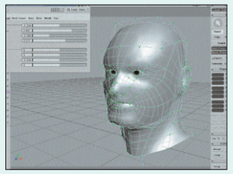
3DS Max 4

A faster, more responsive upgrade to this benchmark package. It has a sleek new customizable interface, and many new features – the new IK system being a notable example.



Poser Pro Pack

Curious Labs has added some powerful capabilities and export options, which (in the case of Flash export) when polished will certainly take users' creativity to the next level.



SoftimageIXSI 1.5

Softimage has done admirably with XSI, which is far slicker and smoother than Maya in some areas, though maybe not as deep. A FaceMaker feature allows you to mould a character's head with a simple, slider-based interface.

D Sculptor

For real-world models for Web sites or games, D Sculptor is an easy, fairly fast, and relatively inexpensive alternative to CAD-oriented laser scanners and cameras.

3D software

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
3D Studio Max 4.0	5.0	Windows	MAY 01	£2,695	Discreet	www.discreet.com	Cadline	01784 461 991
A stunning update that's both faster and better – although an OS upgrade to Windows 2000 may be necessary								
Amorphium Pro	3.0	Both	APR 01	£254	ElectricImage	electricimage.com	Gomark	020 7731 7930
An intriguing product, but more suited to novices than 3D professionals. Stability issues will concern Macintosh users								
Animation Master	5.0	Both	MAR 01	$299	Hash	www.hash.com	Hash	001 360 750 0042
A pure character animation tool designed by character animators for character animators. Perfect if you want to animate on a budget								
Animo Inkworks	3.5	Windows	NOV 00	£375	CAS	www.inkworks.co.uk	CAS	01223 488 200
Inkworks does the job of making your 3D look like a 2D cartoon – but it's expensive for a plug-in, and doesn't offer enough control								
BodyPaint 3D	4.5	Both	FEB 01	£499	Maxon	www.maxon.de	HiSoft	01525 718 181
While it has its fair share of quirks and a rather 'spread out' texturing interface, BodyPaint is an impressive piece of 3D software								
Character Studio 3.0	5.0	Windows	MAR 01	£995	Discreet	www.discreet.com	Discreet	020 7851 8000
A simply awesome new version of the best character animation solution for 3D Studio Max users – it now includes crowd control								
Cinema 4D XL 6	4.5	Both	MAR 01	£1,187	Maxon	www.cinema4d.com	HiSoft	01525 718 181
A well-rounded 3D tool that's suited to character work. It's exceedingly fast, and good value for money								
D Sculptor	4.5	Windows	APR 01	£500	D Vision Works	www.d-vw.com	D Vision Works	01235 437 109
This program for extracting realistically textured 3D models from specially shot conventional photographs is fiddly but effective								
ElectricImage 2.9	4.0	Both	JUL 00	£1,540	Play	www.play.com	Gomark	020 7731 7930
Fantastic modeller for the Mac that sports excellent tools, such as UberNURBS and Photoshop blending modes. Buy it now!								
ImageModeler 2.0	4.0	Windows	JAN 01	£3,125	RealViz	www.realviz.com	RealViz	0033 4 9238 8460
A good but very expensive application for extracting 3D models from photographs, with the option of photo-realistic textures								
LifeForms 3.9	3.5	Both	MAR 01	£175	Credo	charactermotion.com	BIT	01344 871 300
An animation tool designed for choreography, medical animation, and Web content. Not in the same league as Maya, but very worthy nonetheless								
LightWave 6.5	4.0	Both	MAR 01	£1,595	NewTek	www.newtek.com	OneVideo.Net	07000 663 843
An all-round character animation tool sporting a robust system, and an excellent renderer. This version is much better behaved, especially on the Mac								
MatchMover 2	4.0	Windows	MAR 01	£3,525	RealViz	www.realviz.com	Keoti	020 7482 4858
A quick and easy-to-use solution for adding 3D to live-action footage. It's expensive, but worth it if this is your main bread-&-butter work								
Maya 3.0 Unlimited	4.0	Windows	MAR 01	£13,600	Alias|Wavefront	www.aw.sgi.com	Alias|Wavefront	00800 4125 4125
A superb system for both high-resolution and interactive work. Arguable the best all-round animation system								
Poser Pro Pack	4.5	Both	APR 01	£149	Curious Labs	curiouslabs.com	CU	020 8358 5857
Now has powerful new features including the ability to export files to 3DS Max, LightWave, and Macromedia Flash								
Realsoft 3D 4	4.0	Windows	MAY 01	$700	Realsoft	www.realsoft.fi	Realsoft	Direct from Web
An accessible and low-cost program with advanced features. However, many of the high-end tools are limited in their usefulness								
Softimage|XSI 1.5	4.5	Windows	APR 01	£5,150	Softimage	www.softimage.com	Tyrell	020 7343 5500
Polygon-editing tools top the feature list of this version, but all of XSI's modelling and animation tools are first-rate								
Strata 3Dpro	3.5	Both	JAN 01	£517	Strata	www.strata3d.com	Gomark	020 7731 7930
Hard work and a little dated, but the high-quality rendering makes it an application that's definitely worth looking at								
VR Worxs	4.5	Both	FEB 00	£199	VR Toolbox	www.vrtoolbox.com	Digital Toolbox	020 8896 5600
Easy-to-use modular tool set for creating QTVR panoramas or object movies that puts it head and shoulders above the competition. Recommended								
Vue d'Esprit 3	4.0	Windows	MAY 00	£149	E-on Software	e-onsoftware.com	HiSoft	01525 718 181
Cool motion blur, camera focus and foliage make for a Bryce contender that's let down by lack of text tool and unrealistic sun								

Desktop publishing software

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
Acrobat 4.0	4.0	Both	JUN 99	£95	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
Great upgrade if you use Windows; Mac users ride second class. However, the pre-press features are significant on both								
ATM Deluxe	4.0	Both	OCT 99	£45	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
Cross-platform compatibility and support for OpenType may make this the best font manager for you, even if it's not the most feature packed								
FrameMaker 6.0	4.0	Both	OCT 00	£535	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
Version 6.0 adds XML and PDF output capabilities to an impressive set of creation, publishing and management tools for documents sets								
FullPress	4.0	Mac	NOV 00	£3,995	Xinet	www.xinet.com	Turning Point	020 7837 2840
An expensive option, especially if you want WebNative as well, but for larger design studios, it will quickly pay for itself								
InDesign 1.5	4.0	Both	JUN 00	£450	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
So the DTP behemoth is here – a promised revolution that doesn't quite deliver... yet. Expect better things in later releases after a good start								
InProduction 1.0	4.0	Mac	AUG 00	£599.95	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
InProduction is a boon for PDFs, with it simplifying colour separations and preflighting for professional printing, but it lacks automation								
PageMaker 6.5+	3.5	Both	AUG 99	£299	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
Ageing, but still professional layout program, repositioned as an office tool with lots of templates. Excellent value but takes some learning								
Press Ready	4.5	Both	FEB 00	£90	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
Adobe PostScript 3 RIP turns desktop inkjets into proofers. It also bakes a rather tasty PDF file. In all fantastic value								
Quark XPress 4.1	4.5	Both	JAN 00	£1,095	Quark	www.quark.co.uk	Quark	01483 445 566
Suitcase 9.0	4.0	Mac	SEP 00	£79.95	Extensis	www.extensis.com	CU	020 8358 5857
Essential for anyone having to load up vast numbers of fonts such as output bureaus – individuals may, however, find it overkill								

Graphic design software

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
Canvas 7	5.0	Both	MAR 00	£395	Deneba	www.deneba.com	Guildsoft	01752 895 100
An illustrator's dream. Spend time learning the interface and Canvas 7 will reward you with results that you couldn't achieve using anything else								
CorelDraw 10	4.5	Windows	JAN 01	£419.99	Corel	www.corel.co.uk	Corel	0800 581 028
An excellent upgrade with a revamped interface, faster graphics engine and Corel RAVE making it a compelling, go-anywhere solution								
Eye Candy 4000	4.0	Both	JAN 01	£129	Alien Skin	www.alienskin.com	CU	020 8358 5857
Now easier to use, this handy collection of effects is now more integrated with the host platform and comes with presets								
Essentials	4.5	Both	MAR 01	£59.95	Flaming Pear	flamingpear.com	DIgital Workshop	01295 258 335
A great collection of filters that you'll either love or hate. If you need them, then this is one of the most tuned filter collections out there								
FreeHand 9	4.5	Both	APR 00	£279	Macromedia	macromedia.com	CU	020 8358 5857
Useful upgrade to popular old stager. Feature highlights include perspective grid, live enveloping and Flash creation. A worthy upgrade								
Illustrator 9.0	4.5	Both	JUL 00	£249	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
Adobe exceeds expectation by meeting and even surpassing user wishlists and doing it all so damn well. This is the Illustrator you always wanted								
KnockOut 1.5	4.5	Both	AUG 00	£199	Corel	www.corel.com	GraphicsStore	02080 814 939
For anyone involved in digital manipulation, this is a must-have. For producing fast and accurate cut-outs, there's nothing better								
KPT 6	3.5	Both	FEB 00	£109	Corel	www.corel.com	CU	020 8358 5857
Compared to KPT 5, these are a bit of a let down, with a few filters coming from other packages. They often slow down when it gets busy								
KPT Vector Effects 1.5	4.0	Both	FEB 00	£129	Corel	www.corel.com	CU	020 8358 5857
Although this collection does nothing to compensate for Illustrator's biggest limitation – no transparency – there's plenty to play with								
Painter 6	4.5	Both	DEC 99	£299	Corel	www.corel.com	CU	020 8358 5857
If there were two things that Painter needed, it was a new interface and much better performance. Painter 6 gives you both – it's that good								
PaintShop Pro 7	4.5	Windows	DEC 00	£79.95	Jasc Software	www.jasc.com	Digital Workshop	01295 285 335
A wealth of enhancements make the latest version of Paint Shop Pro 7 and affordable choice for Web-graphics professionals								
PhotoFrame 2.0	4.0	Windows	NOV 99	£129	Extensis	www.extensis.com	CU	020 8358 5857
If you need to apply frame effects to images, PhotoFrame is your first choice – fast, simple to use, and very powerful								
PhotoGraphics	3.5	Both	MAY 99	£128	Extensis	www.extensis.com	CU	020 8358 5857
At last, decent vector tools for Photoshop that offer very useful draw features... but do serious designers really need them?								
Photoshop 6.0	5.0	Both	DEC 00	£399	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
This is a perfect upgrade. The new top-level tools are fantastic, and interface enhancements are great too. Rush out and get this now.								
Portfolio 5.0	4.0	Both	AUG 00	£129	Extensis	www.extensis.com	CU	020 8358 5857
A good package that offers much for the budget-aware designer, although upgraders may feel they're not getting much for their cash								
Piranesi 2	4.0	Windows	APR 00	£450	Informatix	www.informatix.co.uk	Informatix	
A 2D painting package with 3D leanings makes arty work on 3D models from a range of applications a breeze – and a unique redo feature shines								
Xara X	4.5	Windows	FEB 01	$149	Xara	www.xara.com	Xara	01442 350 000
A value-packed vector art package that's rich with both features and Web tools, but lacks decent Flash export and animation								
ZBrush 1.0	4.0	Both	NOV 00	$292	Pixologic	www.pixologic.com	Pixologic	001 888 748 5967
A powerful true-3D painting tool that's also great fun to use, but it needs less-clean rendering tools, and access to higher resolutions								

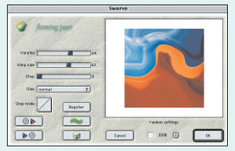
Multimedia software

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
ePublisher	2.5	Windows	JAN 01	£520	Avid	www.avid.com	Avid	01753 655 999
A step-up for PowerPoint users that fails to provide enough for the creative professional, and has an unfinished feel								
GL Pro 8	4.0	Windows	MAY 00	£575	GMedia	www.gmedia.net	GMedia	0118 934 5656
If fast and small are your key concerns, then GL Pro is for you. Not for the script-shy, code-coy or programming-paranoid though								
InfoChannel Designer	3.5	Windows	MAR 00	£599	Scala	www.scala.com	MicroWarehouse	0990 168 671
It can't compete with Director but it's good for PowerPoint users looking to go upmarket. Wait for the bug fix, though								
Inspire 3D	4.5	Both	FEB 00	£225	NewTek	www.newtek.com	Par Services	020 7437 1486
Stitcher 1.5	3.0	Windows	JAN 01	£500	RealViz	www.realviz.com	RezlViz	0033 4 9238 8460
Stitcher 1.5 stitches multiple images to form large, high-resolution scenes and panoramas, but it suffers from being slow and pricey								
Studio Pro	4.0	Both	FEB 00	£517	Strata	www.strata.com	Strata	020 7731 7930
Toast 5	4.0	Mac	MAY 01	£59	Roxio	www.roxio.com	Roxio	001 866 280 7694
The Mac's main CD burning software is now right up to date. It tackles DVD, Video CD, and can record in the background								

Web design software

NAME	RATING	PLATFORM	REVIEWED	PRICE	COMPANY	URL	CONTACT	TELEPHONE
avenue.quark	4.0	Both	MAR 01	£149	Quark	www.quark.co.uk	Quark	00800 1787 8275
avenue.quark offers easy-to-use XML tagging and export from XPress documents, but is still missing XML import and StreetPost uploader modules								
BBEdit 6.0	5.0	Mac	APR 01	£99	BareBones	www.barebones.com	Mygate	020 8297 9699
One-click preview in multiple browsers; multi-file search & replace; low memory requirements. Missing visual layout features								
Dreamweaver 4.0	5.0	Both	APR 01	£299	Macromedia	macromedia.com	CU	020 8358 5857
An indispensable tool matures providing greater control and extensibility – and the new interface allows easier migration to other products								
UltraDev 4.0	4.5	Both	FEB 01	£399	Macromedia	macromedia.com	CU	020 8358 5857
Both programmers and designers will gain much from the latest upgrade to UltraDev, with Dreamweaver users getting a lot for an extra £100								
Dynamic Link	4.0	Both	MAY 00	FREE	Adobe	www.adobe.com	Adobe	020 8606 4001
Dynamic Link is a free add-on to Adobe GoLive that lets Web designers easily link elements on a Web site to a back-end database								
e-Picture Pro	4.0	Both	SEP 00	$199	Beatware	www.beatware.com	Beatware	001 650 556 7900
e-Picture Pro has a great feature set and a powerful approach to vector animation. But the interface could do with some refinement								
Fireworks 4.0	4.5	Both	FEB 01	£229	Macromedia	macromedia.com	CU	020 8358 5857
New design features and enhanced integration with other packages make the latest version even more of a force to be reckoned with								
Flash 5	5.0	Both	OCT 00	£259	Macromedia	macromedia.com	CU	020 8358 5857
New user interface, addition of bézier tools, tight integration with FreeHand 9, enhanced scripting, and a new movie explorer								
FrameMaker 6.0	4.0	Both	OCT 00	£535	Adobe	www.adobe.com	Adobe	020 8606 4001
Version 6.0 adds XML and PDF output capabilities to an impressive set of creation, publishing and management tools for documents sets								
Freeway 3.0	4.0	Mac	APR 01	£199	SoftPress	www.softpress.com	SoftPress	0800 731 34257
Good as a quick tool for laying out pages without any HTML editing skills – but you can't access the code. Ideal for novices with DTP experience								
FrontPage 2000	4.0	Windows	APR 01	£85	Microsoft	www.microsoft.com	Microsoft	0870 129 3120
Preserves HTML to user's specifications; outstanding site-management features – but won't analyze non-native pages; limited DHTML capabilities								
Fusion 5.0	4.0	Windows	APR 01	£185	NetObjects	www.netobjects.com	QBS	020 8956 8000
Automatic object positioning and layout precision; good selection of style templates. It's a bit slow, though, and uses a lot of memory								
Generator 2	4.0	Both	DEC 99	£799	Macromedia	macromedia.com	CU	020 8358 5857
The true future of the Web, but it's a shame that it hasn't really caught on. Great tools and functionality let you create next-generation Web sites								
GoLive 5.0	5.0	Both	APR 01	£238	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
Tight integration with other Adobe products; leaves foreign code untouched; new database integration. Dynamic link database only writes ASP pages								
HomeSite 4.5	4.5	Windows	APR 01	£75	Allaire	www.allaire.com	Dabs Direct	0870 129 3120
Few frills, but hand coders and pros swear by it. Maintains uncluttered HTML while integrating other leading Web technologies								

Digit Best Buys

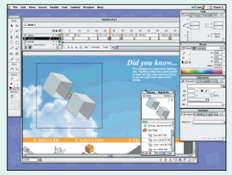


Flaming Pear Essentials

The Essentials collection is clear in its agenda: to be the best collection of Adobe Photoshop compatible plug-ins available. And for the large part, it succeeds, becoming the true hammer and chisel of any self-respecting filter-fanatic's toolbox.

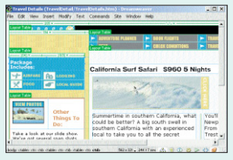
Xara X

Xara X has come a long way since it was marketed by Corel, and with the tool back in the hands of its British owners, great things have come about in this upgrade. It's ideal for down-&-dirty creative work, and for the majority of daily design grind.



Macromedia Flash 5

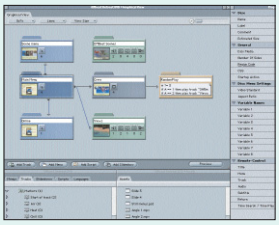
Macromedia has finally delivered the promise of Flash. The top Web development tool is now more powerful, more flexible and unified, yet still manages to be easier to use. Flash has completed its evolution from a vector-animation tool into the most powerful Web-development tool around.



Macromedia Dreamweaver 4

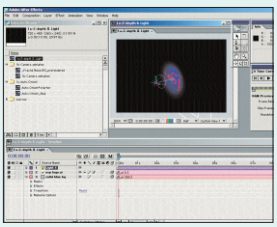
With code now more accessible, a new user interface and improved integration with other Macromedia tools and third-party back-end systems, version 4 is a mature upgrade that make Dreamweaver a highly effective and efficient part of any designer's toolkit.

Digit Best Buys



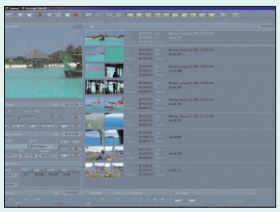
Apple DVD Studio Pro

If you've experience with high-end solutions, DVD studio's interface will make you feel at home – and it doesn't end there. The feature set measures up well against more expensive packages. A great first release for Apple.



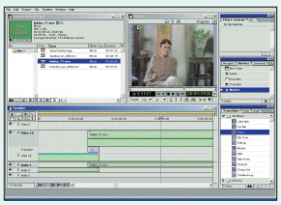
Adobe After Effects 5.0

A number of new features debut in this much-anticipated upgrade: true 3D compositions with lights and cameras, Flash output, and vector paint tools are just the tip of the iceberg.



DV.now AV

An intuitive, versatile, and high-quality capture application. Both DV and analog capture are handled with ease, and there are several export options available.



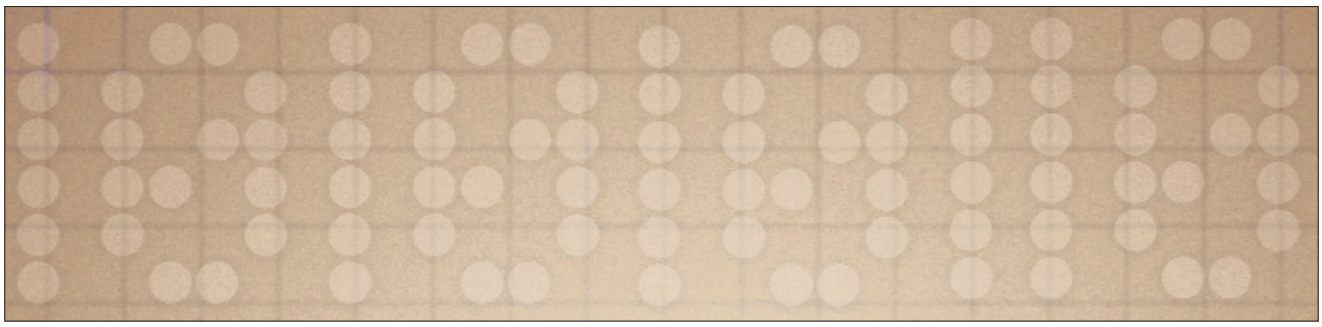
Premiere 6

For many users, the smaller updates in this version will be more important than the DV and Web-video tools. Overall, Premiere 6 is a must-have upgrade whatever you want to do with it.

HotMetal Pro 6.0	4.0	Windows	APR 01	£67	SoftQuad	hotmetalpro.com	SoftQuad	020 8387 4110
Highly customizable, which can be a little confusing; extensive editing environment and improved media management features; good value for money								
HomeSite 4.5	4.5	Windows	JUN 00	£75	Allaire	www.allaire.com	Candric Software	01753 622 311
The latest version provides robust HTML-editing capabilities to end users comfortable working in a tag-&-text environment								
Hypnotizer	4.0	Windows	APR 01	$390	Hypnotizer	www.hypnotizer.net	Hypnotizer	020 7546 8694
An easy-to-use, creative first-generation tool with some excellent ideas, but which suffers from relying on a proprietary plug-in								
LiveMotion 1.0	4.5	Both	JUL 00	£189	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
This beats Flash in many ways, including offering a one-stop place for all Web animation work. The timeline is very powerful								
PhotoVista 2.0	4.0	Windows	DEC 00	£49.95	MGI	www.mgisoft.com	MGI	0800 973 830
Accurate, low-priced panorama stitching program for print or interactive Web-site images, although it only has limited support for QuickTime VR								
Transcoding Publisher	4.0	Windows	AUG 00	bespoke	IBM	www.ibm.com/uk	IBM	0990 426 426
Running this, it doesn't matter what someone tries to access your site on, they will be able to get the information they need								
USAnimation v5 WE	4.0	Win, Linux	MAY 01	£5,995	Toon Boom	www.toonboom.com	Pixelution	01462 433 558
Packed with high-end features, this vector-based animation tool now lets you create fantastic Flash animations								

Digital video software

NAME	RATING	PLATFORM	DATE	PRICE	COMPANY	URL	CONTACT	TELEPHONE
After Effects 5.0	4.5	Both	MAY 01	£450	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
A long-awaited, fully packed update that brings true 3D compositing, vector paint tools and support for the Flash file format to AE								
Boris Continuum	4.5	Both	NOV 00	£290	Boris FX	www.borisfx.com	Polar Graphics	020 8868 2479
An excellent selection of 23 After Effects-compatible filters that allows you to work with more control and in three, intersecting dimensions								
Boris FX	4.5	Both	AUG 00	£649	Boris FX	www.borisfx.com	Polar Graphics	020 8868 2479
A great package – if a little expensive – and available for most editing and compositing applications								
Boris Red	4.5	Both	MAY 00	£1,295	Boris FX	www.borisfx.com	Polar Graphics	020 8868 2479
It may be expensive, but you won't be disappointed with this video-effects powerhouse. Buy it now!								
Cinestream	4.5	Both	MAY 01	£339	RealViz	www.realviz.com	Media 100	01344 411 001
Delivers not just a solid set of DV editing tools, but also the much-hyped and very good EventStream technology for interactive Web video								
CinéWave	4.5	Mac	JAN 01	£5,300	Pinnacle	pinnaclesys.com	Pinnacle	01895 424 228
CinéWave allows Final Cut Pro users to create much better footage, and its support for a wide range of breakout boxes makes it a flexible solution								
Cleaner 5	4.5	Both	DEC 00	£419	Terran	www.terrancom	CU	020 8358 5857
An excellent upgrade that gives you access to the best of the current technologies; the wizard still needs work, though								
Combustion 1.0	4.5	Both	SEP 00	£2,295	Discreet	www.discreet.com	Graphics Domain	01494 515 500
Unless the non-standard interface puts you off, there's nothing in the same price range that can compete with this stunning package								
Commotion 3.0	4.5	Both	SEP 00	£1,385	Puffin Designs	puffindesigns.com	Pinnacle	01895 424 228
Commotion has grown from a great video-paint tool into a top-effects environment with enough features to create some stunning compositions								
Delirium	3.5	Mac	JUN 00	£460	DigiEffects	digieffects.com	Polar Graphics	020 8866 8207
A great particle effects package let down by limited 3D tools and unispiring filters. You'll either love or hate the controls								
DVDit PE 2.0	2.5	Windows	NOV 00	£679	Sonic Solutions	www.sonic.com	CU	020 8358 5857
An overpriced upgrade with hardly any new features which, due to lack of competition, you might end up having to buy								
DVD Studio Pro	4.5	Mac	MAY 01	£599	Apple	www.apple.com/uk	Apple	0800 783 4846
An excellent professional-level tool that costs in the hundreds rather than thousands – although a few extra features are needed								
DV.now	3.5	Windows	MAR 00	£299	FAST	fastmultimedia.com	Fast	020 8968 0411
DV.now is a better than average product at a low price that's worth looking at now that the bugs have been ironed out								
DV.now AV	4.5	Windows	APR 01	£499	Dazzle Fast	dazzle-europe.com	MD	020 7359 6132
A robust and easy-to-use capture solution with an excellent logging application and good Adobe Premiere integration								
Edit 6	4.5	Both	MAY 01	£4,945	Discreet	www.discreet.com	Discreet	020 7851 8000
A comprehensive tool that delivers an assault of editing and real-time features that should see you blast through your work								
EZDV	3.5	Windows	JUN 00	£195	Canopus	canopus-uk.com	MJPP	020 8868 9601
A good basic video-editing package for the multi-skilled designer. However, do not expect powerful things from EZDV. A light solution only								
Final Cut Pro 2 (beta)	4.5	Mac	MAY 01	£705.53	Apple	www.apple.com/uk	Apple	0800 039 1010
This upgrade offers real-time preview and editing, supporting Beta SP and HDTV formats. A serious effort that fully utilizes the G4 processor								
Media 100 i	4.0	Mac	MAR 01	£2,745	Media 100	media100.com	Media 100	01344 412 812
The best streaming media creation solution on the market, although some may prefer to wait for the Windows-based iFinish 4.0								
Media Cleaner Pro	4.5	Both	MAR 00	£329	Terran	www.terran.com	CU	0208 358 5857
If you need to compress DV then there really is just one solution – and this is it. Impressive stuff that covers all video bases								
Media Studio Pro 6	4.0	Windows	AUG 00	£399	Ulead	www.onevideo.net	onevideo	07000 663843
Although it lacks some high-end features such as motion tracking and 3D effects, Media Studio Pro is a good all rounder								
MoviePack 3.0	4.5	Windows	MAY 01	£599	AIST	www.aist.co.uk	AIST	01525 718 181
MoviePack combines the best from editing, compositing and animation packages, but its usefulness will rely on a wide take-up by users								
Paint Effects for AE	4.5	Both	DEC 00	$499	A|W	aliaswavefront.com	A|W	001 416 362 9181
This is an outstanding tool for natural 3D painting in Adobe After Effects – particularly great for subtle effects – but it takes a lifetime to render								
Premiere 6	4.5	Both	MAY 01	£450	Adobe	www.adobe.co.uk	Adobe	020 8606 4001
Version 6 brings Premiere bang up-to-date with support for native DV and Web video output – along with many other new features								
Purple	4.0	Windows	OCT 00	£5,000	FAST	fastmultimedia.com	Fast	020 8968 0411
A powerful DV-editing turnkey solution with its own way of doing things. Try before you buy								
QuickTime 4 Pro	4.0	Both	MAR 00	£30	Apple	www.apple.com	Apple	0800 783 4846
RT2000 Mega Pack	4.5	Windows	MAR 01	£799	Matrox	www.matrox.com	Matrox	01753 665 624
The Mega Pack brings tons of extra software to the video-editing party, making the RT2000 the best solution at its price by a wide margin								
ReTimer	4.5	Both	AUG 00	£1,495	RealViz	www.realviz.com	Keoti	020 7482 4858
Speed up or slow down a film sequence by generating motion vectors in ReTimer								
Speed Razor 2000	4.5	Windows	MAY 01	£695	In-sync	www.in-sync.com	In-sync	020 7287 6070
Multiple bins and batch-capture with bins; very fast performance; low-res clip editing; QuickTime support. One of the industry's best-kept secrets								
Video Toaster NT	4.5	Windows	JUN 00	£2,195	NewTek	www.newtek.com	OneVideo.Net	07000 663 843
A true next generation video package that offers a solid bundle of LightWave VT, Aura VT and in-sync Speed Razor plus cracking hardware								
VR Worx 2.0	4.0	Both	OCT 00	£219	VR Toolbox	www.vrtoolbox.com	Digital Toolbox	020 8201 4455
Improved modular bundle for creating QuickTime VR panoramas or object movies, integrated into scenes if required								
XPress DV 2 (beta)	4.5	Windows	MAY 01	£1,200	Avid	www.avid.com	Avid	020 7343 5500
XPress DV chooses to focus on content for such applications as the Web, DVD, and Video CD. Supports a multitude of formats, and is simple to use								



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[We should celebrate the IT recession, ignore the hype, and get back to work]

SIMON JARY

PC sales slump is good news

It's not just the dotcoms that are suffering in today's biting IT recession. PC manufacturers aren't having a good time either, with sales dropping faster than the Mir space station. Yes, it all sounds very depressing, but only if you own shares in PC companies. The rest of us should celebrate this computer-industry misery, as it could bring us better machines at cheaper prices – as well as all sorts of high-tech gadgetometry.

Technology has entered a global recession, according to the experts – who dubbed 2000 "the year that never was" for PC sales. Apparently, this is down to a number of sales-eating factors – most notably, a fourth-quarter 2000 saturation of PCs in the consumer and commercial markets in the US.

While the worldwide desktop PC market grew five per cent in 2000, unit shipments of desktop PCs fell in the US by 4.3 per cent, according to an IDC report. And where the US tech industry is today is a pretty fair indicator of where we'll all be tomorrow, or, at the very latest, next Tuesday.

Indeed, silicon soothsayers don't believe there'll be a "sustainable cyclical recovery" in PC sales until the second half of 2002. The rest of this year represents a "fully fledged recession", which should result in negative unit growth for the PC market in 2001 – a first in its so-far glittering history. PC Data analysts also reported the first-ever annual decline in PC sales, with last December's sales of desktop PCs declining by a massive 24 per cent – the fifth consecutive month of decline, and the second in double digits.

Another of the reasons for the record decline is the "lack of a compelling upgrade rationale" for the millions of consumers who purchased PCs over the last two years. And here's where we start winning, while the manufacturers are losing.

Poor PC sales forces manufacturers into one of four strategies. First, the company could pour cash into research and development in order to produce innovative computers to capture our imaginations and wallets. We're not upgrading now because we (a) don't really need to as our present machines are way fast enough for most tasks, and (b) what's on offer is exactly the same with a slightly faster chip in it.

If PC manufacturers re-thought the whole concept, we might be more likely to trade-in our old system for a product that does something different – or, at least, the same thing differently. This approach is what saved Apple from what looked like a certain death in 1998, when its iMac consumer PC took translucent plastics out of the kitchen and into the office/study/living room.

The second approach is for the computer companies to lay-off a bunch of staff, slash R&D budgets, and halt development in its tracks. This lets us get on with our jobs, without having to worry so much about a few extra megahertz, as well as being able to spend any spare dough on upping our RAM (much more important than MHz). It can then sell larger volumes of these stood-still computers at rock-bottom prices. That'll shake out the millions of people who really do need to upgrade their Pentium I PCs and pre-G3 Macs.

Thirdly, the computer makers can forget about boring old PCs, and concentrate on developing new gadgets that we don't need one minute and can't live without the next. Manufacturers have already sought to broaden their product offerings. Both Intel and Compaq have announced plans to release digital-music players, for example. Even software maven Microsoft didn't bother turning up at this spring's already depleted Comdex show in Chicago (which it usually opens with a Bill Gates keynote), and released a games console. Apple used to do this crazy stuff all the time, but has been burnt so badly in the past, that it'll probably leave the gizmos to its beige brethren.

PC Data anticipates that computer retailers will see a 12 per cent increase in revenue due to a shift away from PCs and toward digital devices. Sales of handheld devices more than doubled in November 2000 compared with November 1999. Other devices showing healthy revenue increases in November 2000 were MP3 players, Web PC cameras, digital cameras and mice.

Lastly, PC manufacturers can go bust.

Either way, we shouldn't concern ourselves too greatly with the falling share prices of companies from Apple to Xerox. We don't own shares in them, and we hope our pension funds don't either. We want truly better computing solutions at reasonable prices – and we want these products to last a long time. When the good times are rolling again, the PC makers can go back to frightening us by making our systems obsolete every few weeks. Until then, it's time to ignore the desperate hype and get back to work.

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